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Form and meaning in Fulfulde: a morphophonological study of Maasinankoore

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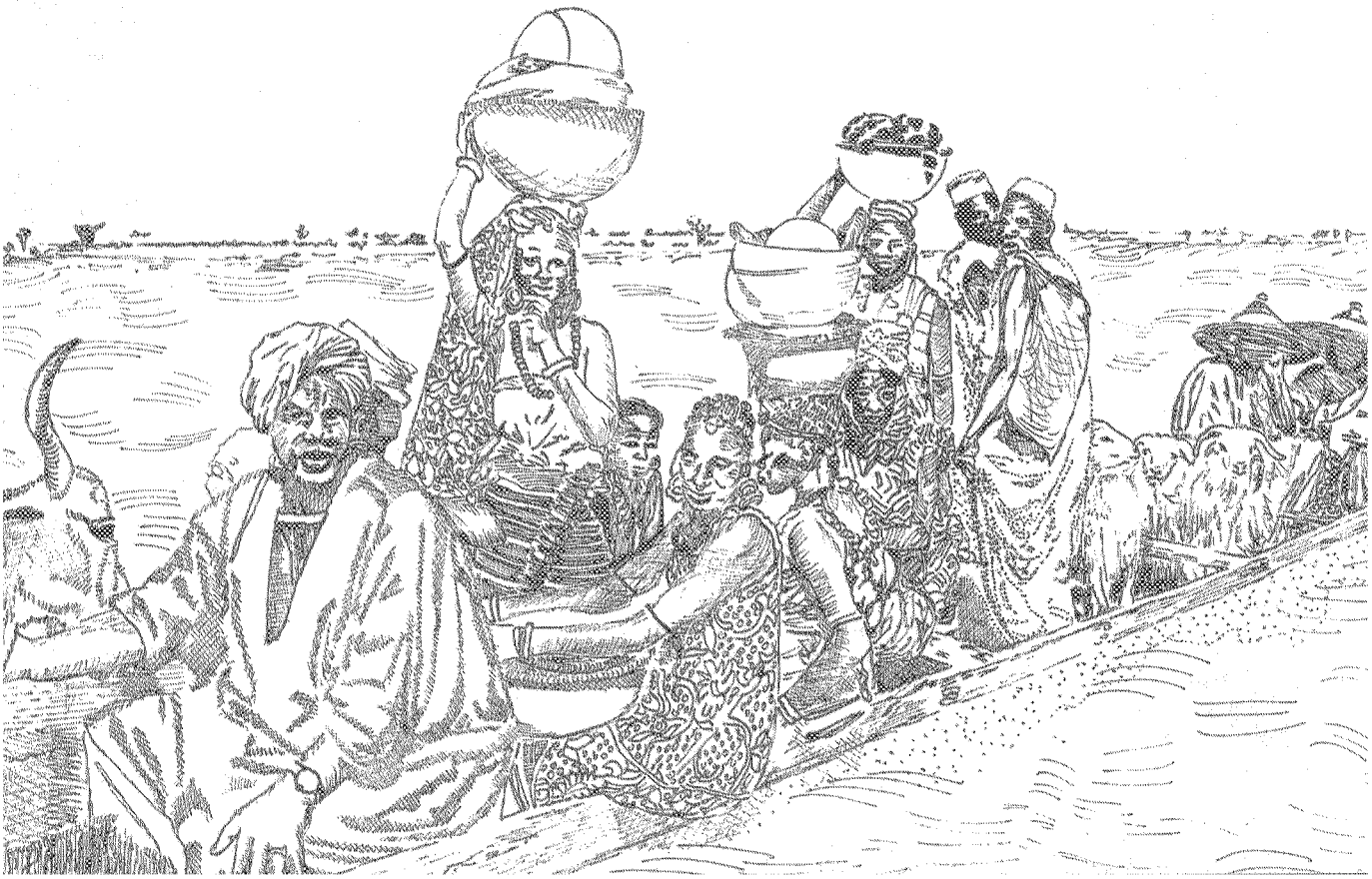
A morphophonological study of Maasinankoore



Form and meaning in Fulfulde

A morphophonological study of Maasinankoore

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J.O. Breedveld

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To Felix and Caroline

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List of abbreviations

A	Aadamaawa (is the dialect source of the example)
adj.	adjective
ALT	altri-locative (extension)
Ar.	Arabic (source language of loan-word)
A-rule	automatic phonological rule
ASS	associative (extension)
ATR	advanced tongue root (autosegmental feature)
augm.	augmentative
Bam.	Bambara (source language of loan-word)
BRU	brusque (extension)
C	consonant
CAUS	causative (extension)
Cd	concord
cf.	compare
CIRC	circumstantial (extension)
CL	class marker
COM	comitative (extension)
COMPL	completive (conjugational suffix)
COP	copula
CS	conjugational suffix
DAT	dative (extension)
DEM	simple demonstrative
dim.	diminutive
e.g.	for example
etc.	et cetera, and other similar things
EVAS	evasive (extension)
EXH	exhortative (conjugational suffix)
EXHA	exhaustive (extension)
excl.	exclusive (first person plural pronoun)
EXT	extension
(F)	basic series (of initial consonant alternation)
FDEM	far demonstrative
FG	final glottality
fig.	figuratively
FJ	Fuuta Jallon (is the dialect source of the example)
Fr.	French (source language of loan-word)
FT	Fuuta Tooro (is the dialect source of the example)
G	Gombe (is the dialect source of the example)

id.	idem
i.e.	that is to say, in other words
IMPpl	imperative plural (conjugational suffix)
IMPsg	imperative singular (conjugational suffix)
INCH	inchoative (extension)
incl.	inclusive (first person plural pronoun)
INCOMPL	incompletive (conjugational suffix)
INDEF	indefinite (conjugational suffix)
INF	infinitive (marker)
INT	intensive (extension)
L	Liptaako (is the dialect source of the example)
lit.	literally
LOC	locative marker, or locative copula
M	Maasina (is the dialect source of the example)
M	any morpheme (that can follow the conjugational suffix)
M.COMPL	middle completive (conjugational suffix)
M.EXH	middle exhortative (conjugational suffix)
M.INCOMPL	middle incompletive (conjugational suffix)
M.INDEF	middle indefinite (conjugational suffix)
M.IMPsg	middle imperative singular (conjugational suffix)
MP	modal predicate
M.R.COMPL	middle relative completive (conjugational suffix)
M.R.INCOMPL	middle relative incompletive (conjugational suffix)
M.SUB	middle subjunctive (conjugational suffix)
M.VF	middle verb focus (conjugational suffix)
N	noun
N	nasal (consonant)
n.d.	no date
NEG	negative (conjugational suffix)
(N)	prenasalized series (of initial consonant alternation)
^{n}C	prenasalized consonant
N.COMPL	negative completive (conjugational suffix)
NDEM	near demonstrative
NE	Eastern Niger (is the dialect source of the example)
N.INCOMPL	negative incompletive (conjugational suffix)
N.M.COMPL	negative middle completive (conjugational suffix)
N.M.INCOMPL	negative middle incompletive (conjugational suffix)
N.P.COMPL	negative passive completive (conjugational suffix)
N.P.INCOMPL	negative passive incompletive (conjugational suffix)
O	object
OPro	object pronoun
o.s.	oneself
(P)	plosive series (of initial consonant alternation)
PART	partitive (extension)
PAST	past tense marker

P.COMPL	passive completive (conjugational suffix)
P.INCOMPL	passive incompletive (conjugational suffix)
pl.	plural
P.R.INCOMPL	passive relative incompletive (conjugational suffix)
P.R.COMPL	passive relative completive (conjugational suffix)
P-rule	phonological rule (with some exceptions, sometimes optional)
P.SUB	passive subjunctive (conjugational suffix)
P.VF	passive verb focus (conjugational suffix)
qp	question particle
qw	question word
R.COMPL	relative completive (conjugational suffix)
RDEM	referential demonstrative
REC	reciprocal (extension)
RES	resultative (extension)
REV	reversive (extension)
R.INCOMPL	relative incompletive (conjugational suffix)
Rm	Ringimaaji (is the dialect source of the example)
S	subject
SIM	simulative (extension)
sg.	singular
s.o.	someone
Son.	Soninke, Marka (source language of loan-word)
SPE	Sound Patterns of English (the model described in that publication)
SPro	subject pronoun
Srg.	Sorogo, Bozo (source language of loan-word)
sth.	something
SUB	subjunctive (conjugational suffix)
TM	topic marker
Tsk.	Tamashek, Touareg (source language of loan-word)
V	verb
V	vowel
VF	verb focus (conjugational suffix)
VR	verb root
vs.	versus
VS	verb stem
WFC	well-formedness condition
Z	Zoubko 1980 (is the source of the given example)

Chapter one
Introduction

1.1 THE LANGUAGE AND ITS SPEAKERS

Fulfulde is the language of the Fulbe spelt **Fulɓe** in the Fulfulde orthography. Like all generalizations this claim needs some modification because there is a variety of terms for the language (Arnott 1970a:1) and there is no clear definition for the people. The two language internal names for the language are Pulaar, which is used in Senegal and Mauritania, and Fulfulde, which is used in Mali and further eastwards. As the data of this thesis are mainly collected in Mali the term Fulfulde is used as a cover term for the whole dialect continuum (see section 1.2).

The main problem, however, lies in the fact that the concept of Fulbe is difficult to describe. There is no clear definition of the term Fulbe or its singular Pullo. The most readily provided definitions are circular: "Fulbe are people who call themselves Fulbe", or "Fulbe are people who are called Fulbe". Even with these definitions problems arise about whom to include, because it is not everybody who calls him or herself a Pullo who is considered to be a Pullo by others (see Nicolas 1981, Schilder 1994).

Language cannot be used as the sole criterion for defining the Fulbe because in some areas people who call themselves Fulbe and are generally referred to by others as Fulbe have been assimilated into other dominant groups (like the Bambara in Southern Mali, the Hausa in Nigeria) and they no longer speak Fulfulde. By contrast, Fulfulde must of course be said to be the property of all people for whom it is the mother tongue. Yet, there are a number of social and "ethnic" groups which have been assimilated into the Fulbe society and whose members are not considered to be Fulbe even though their mother tongue is Fulfulde, e.g. the **Seɓɓe** (also named Sorogo or Bozo). It is therefore more correct to say that Fulfulde is the language of the Fulbe society, or **pulaaku**.

1.1.1 PULAAKU

All Fulfulde speaking people use the terms Pullo, Fulbe, and **pulaaku** (or **pulaagu**). The meanings of the terms Pullo and Fulbe are hardly investigated, but it is difficult to find a study about the Fulbe which does not mention the word **pulaaku**. Different authors, however, use different translations, which might be related to regional differences or the fact that they performed their investigation amongst different social groups.

Linguistic literature

Noye (1989:125) describing the dialect of Jamaare (Diamaré) in Cameroon translates **pulaaku** as the physical appearance and the moral code of the Fulbe ("type physique peul; code moral peul"). For Nigeria, Taylor (1932:59) translates **pulaaku** as Fulaniry. Zoubko (1980:404) translates **pulaaku** as the total of characteristic qualities of the Fulbe ("ensemble de qualités caractéristiques des Peuls"). She does not indicate a particular

dialect as her source. Mohamadou (1985:87), describing Aadamaawa, translates **pulaaku** both as that which is characteristic of the Fulbe and as the Fulbe culture ("caractéristique de ce qui est peul", "culture peule"). Fagerberg, in her language course of the Maasina dialect (1984, part II:52), translates **pulaaku** as "the Fulbe way, the characteristics and behaviour of Fulbe".

Anthropological literature

In the anthropological literature, the term **pulaaku** has often been described as the (ideal) behaviour which is said to be typical of the Fulbe, or the ideology of the Fulbe. Such a description is given by Bocquené (1981:235) who describes **pulaaku** as a moral code of honour, and by Dupire (1962, 1970, 1981) who translates **pulaaku** as the way to behave in "Peul" ("la manière de se comporter en Peul"). She writes:

> Le **pulaaku** c'est à la fois la coutume et un ensemble de qualités dont certains sont prônées par bien d'autres sociétés africaines — résignation (**munyal**), intelligence (**hakkillo**), courage (**cuusal**) — mais dont l'une semble à l'origine lié à un temperament introverti et à des conditions de vie pastorale particulièrs: la retenue ou la réserve (**semteende**). (Dupire 1970:189)*

Kirk-Greene (1986:41-42) decided to change Taylor's "uglier" term Fulaniry (which he wrongly quotes as Fulanity) to the more acceptable Fulaniness and describes **pulaaku** as "characteristics of the Fulbe". Riesman (1977:128) writes "that the term has a meaning which obliges [us] to put the accent on the social: **pulaaku** means not only the qualities appropriate to a Fulani but also and at the same time the group of Fulani men possessing these qualities". He thus emphasizes two aspects in the meaning of the word **pulaaku**: "the men and their manner of being".

Both linguists and anthropologists seem to construe their own definition, whereby the linguists show a preference for occasional translation equivalents and the anthropologists make an effort to fill in the often artificial translations provided by the linguists. Recently, Fulbe identity has become a controversial topic in the anthropological literature. For example Bierschenk (1992:514) wonders whether it is possible to transpose explanations of terms related to the Fulbe culture like **pulaaku** which were formulated for a particular geographic, social and historical situation (e.g. North Benin) to another situation. He argues that this would imply that something which can be described as "Fulbe culture" exists independent of time, place and social circumstances, rendering individual empirical research of local "culture" superfluous. My investigation in Maasina where **pulaaku** is defined in a way different from the way in which it is defined in other Fulfulde speaking areas confirms this point.

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* **Pulaaku** is at the same time the customs and the set of qualities some of which are also valued by several other African societies — resignation (**munyal**), intelligence (**hakkillo**), courage (**cuusal**) — but of which one of these seems to be primarily linked to an introverted temperament and to the particular conditions of pastoral life: restraint or reservedness (**semteende**).

Pulaaku in Maasina

The descriptions of **pulaaku** which I came across during my fieldwork in Maasina are different from the general understanding of the concept **pulaaku** in the literature. All suggestions of a meaning referring to a special behaviour, special appearance, or a moral code associated with the word **pulaaku** were categorically denied by Fulfulde speakers in Maasina, the majority of whom opt for a description of **pulaaku** as "the Fulbe society". The definition provided by the Malian linguists working for MAPE (1983a:16): Fulbe community ("communauté peul") summarizes the following descriptions which were given to me by members of different social groups within the Fulbe society in Maasina:

pullo ɓaleejo:	Fulbe society ("société peul")
jaawanɗo:	Fulbe ethnic group, the Fulbe milieu ("l'ethnie peul, le milieu peul")
diimaajo:	all the Fulbe together ("l'ensemble de tous les peuls")
pullo boɗeejo:	all those who speak Fulfulde, and in particular all the Fulbe ("les gens qui parlent peul en gros, en particulier les peuls")

The term **pulaaku** clearly refers only to the Fulbe society. It is not used to refer to the moral codes or the value systems which exist within this society. These notions are indicated with other words like **ndimu** 'nobility', **teddeengal** 'respect, honour', **yaage** 'restraint', **gacce** 'reservedness, shame', **munyal** 'patience', **kulol** 'fear, respect', **semte** 'embarrassment, shame'.

All descriptions of **pulaaku** in Maasina refer to the 'Fulbe society'. However, a Fulfulde speaker's definition of who the Fulbe are appears to be dependent on the social group to which he/she belongs. The different social categories of the Fulbe society are defined according to the occupations which are associated with these groups. The Fulfulde society in Maasina includes the following social groups (cf. Gallais 1984:127-137, GRÉFUL 1993):

moodibo / moodibaaɓe	clergy, Koran teachers
pullo ɓaleejo / fulɓe ɓaleeɓe	elite, sedentary
pullo boɗeejo / fulɓe woɗeeɓe	herdsmen, nomadic or semi-nomadic
jaawanɗo / jaawamɓe	tradesmen, diplomats
nyeenyo / nyeeyɓe	craftsmen, praise singers:
maabo / maabuuɓe	weavers
sakke / sakkeeɓe	leather workers
baylo / wayluɓe	blacksmiths
labbo / lawɓe	wood workers
diimaajo / riimayɓe	agricultural labourers
ceɗɗo / seɓɓe	fishermen (Sorogo)

The most strict definitions of Pullo or Fulbe are mostly given by the sedentary elite (**fulɓe ɓaleeɓe** 'black Fulbe') who consider themselves and the nomadic herdsmen (**fulɓe woɗeeɓe** 'red Fulbe') to be the only true or pure Fulbe. They have tried to consolidate and appropriate the name Fulbe for themselves only, in order to emphasize their supremacy and their prominent leading role in the Fulbe society. A **pullo ɓaleejo** provided the following

definition: a true Pullo is someone who belongs to the offspring of one of the four brothers who are the mythological forefathers of the Fulbe. The family name is an indication of such a bloodline. According to the story told by this informant, these brothers were born in Tokror. The eldest brother Iisa is the ancestor of the Jallu**ɓ**e whose family name can be Jallo, Dikko, Jah, Kelli, and Jall. The second brother Yahaya is the forefather of the Wuru**ɓ**e or Baa**ɓ**e called Ba, Boli, or Jagayete. The third brother Ruuraba is the forefather of the Ferroo**ɓ**e such as the Sow, and the Sidibe. The fourth brother Aneesu is the forefather of the Fittoo**ɓ**e who have family names like Bari and Sankare. The offspring of these families are called Fulbe (Gallais 1984:128-129).

According to this most rigid definition, **jaawand'o**, pl. **jaawam ɓe**, 'traders' are not Fulbe, as they are thought to be the off-spring of a half-brother of the four Fulbe brothers, fathered by a slave (see also Gallais 1984:132). But a **jaawand'o** informant translating **pulaaku** as Fulbe ethnic group ("ethnie peul") defined himself as belonging to the Fulbe. So in their self-definition the **jaawam ɓe** consider themselves to be Fulbe.

However, the mythologically defined rigid definition also makes groups such as the **jaawand'o**, pl. **jaawam ɓe**, the **nyeenyo**, pl. **nyeey ɓe** (craftsmen, praise singers) and the **diimaajo**, pl. **riimay ɓe** (ex-slaves, protégés, labourers, farmers) to be people without an ethnic identity. In Maasina itself people belonging to these social groups will indeed say that they are **jaawand'o** or **nyeenyo** or **diimaajo**. Outside Maasina however, they will give Fulbe as their ethnic affiliation. Only the Sorogo (**ced'd'o**, pl. **se ɓ ɓe**, also known as Bozo) have their own ethnic affiliation. Although many of them have Fulfulde as their mother tongue, I have never heard a **ced'd'o** claim that he or she was a Pullo in ethnic origin, although some who have Fulfulde as their mother tongue did say that they were Pullo by culture.

Riesman (1977), describing the Jelgooji in Burkina Faso, equates Fulbe with **rim ɓe** 'noblemen'. The term **dimo**, pl. **rim ɓe** includes the **ful ɓe ɓ aleeɓe** (Fulbe elite) **ful ɓe wod'eeɓe** (herdsmen), the **jaawam ɓe**, and the **nyeey ɓe**. This definition excludes only the **riimay ɓe** from the Fulbe society. This view was denied by a **diimaajo** who considered anyone who spoke the Fulfulde language to be a Pullo. He reported that the only language he knew was Fulfulde, and so did his father, his grandfather and his forefathers as far as he knew. He thought of himself as being part of the Fulbe culture and society and his definition of **pulaaku** therefore read: "all the Fulbe together".

As all of the above mentioned social groups indicated that they spoke the same Fulfulde, this present study can be said to be researching the language of the **pulaaku**, i.e. Fulbe society, rather than the language of the Fulbe elite. Consultants came from all social groups.

Hypothesis: pulaaku in other dialects also refers to the people

The hypothesis is that careful semantic research into the concept of **pulaaku** will reveal the meaning 'Fulbe society' also in dialects other than Maasina. The existence of the expression **laawol pulaaku** 'way of the Fulbe' in the dialect of the Hausa States (Kirk-Greene 1986:42) seems to confirm this hypothesis (**laawol** literally means 'way'). It is unlikely that **laawol pulaaku** can mean 'way of the Fulbe' while **pulaaku** on its own would have the meaning 'characteristics of the Fulbe'.

Other indications pointing to this assumption can be found in the literature in places where researchers reproduce the words of their informants literally. For instance Ogawa (1993:131) quotes a person from the Jenngelɓe in Senegal who says: "What I know about **pulaagu** is that **pulaagu** and the Fulbe are the same thing". Another example can be found in Van Santen's study of the relations between the Mafa and the Fulbe in Cameroon. She reports that most people (both Mafa and Fulbe) who she asked to explain the term **pulaaku** replied to her inquiries as follows: "**pulaaku** is somebody who is born Fulbe" (1993:49). Both quotations seem to indicate that the speakers utilize a definition of **pulaaku** which is void of any moral implications but merely refers to the people. Neither author, however, seems to have used the information in these quotes to depart from Dupire's definition in their description of the meaning of the term **pulaaku**.

In Maasina the appropriate elitist Fulbe behaviour includes moral codes like not eating much, not having a big posture, speaking in a low voice, not telling lies, sharing your wealth with everybody (i.e. you should not refuse to help someone in need). The last act especially (sharing wealth) is an obligation for the elite. If someone does all these things the expression in Maasina is: **a pullo dimo** 'you are a noble pullo'.

The statements of the Ringimaaji in Cameroon link an ideal moral behaviour to the term **pulaaku**: "**pulaaku** gives rules to man and wife in that you should treat your wife very kindly, e.g. you should not nag her in front of strangers. If there is anything wrong you settle it calmly, the two of you".

It is not always clear whether the given definitions indicate a regional difference in meaning of the term **pulaaku**, or whether the researchers tried to find similarities between the concept of **pulaaku** in their research area and what had already been written about **pulaaku** in the literature. It is probable that different social and political developments in the many areas where Fulfulde is spoken have caused a semantic shift of the word **pulaaku**. The question is the following: is the interpretation of **pulaaku** as 'appropriate Fulbe behaviour' in other areas an extension of the "original" meaning 'Fulbe society' which can still be found in Maasina? Or has the term **pulaaku** in the Maasina dialect lost the meaning component of 'appropriate Fulbe behaviour'?

1.1.2 FULFULDE LANGUAGE NAMES

In the literature, the Fulfulde language is known under several other names. The French name "peul" is derived from **pəl** which is the Wolof word for the Fulbe people in Senegal (Nussbaum 1970:V-28). In English the name Fulani, designating both the language and people, has been borrowed from the Hausa in Nigeria where the word **fílàaníi** is the name of the people (Ma Newman 1990:104). The term **fellata** comes from the Kanuri language, originally describing the Fulbe in Borno, it is now also used in Sudan for Fulbe and West Africans in general (Abu-Manga 1986:7). The German linguist August Klingenheben created the name "Ful" for this language on the basis of linguistic analysis of the stem **ful-** found in the name of the people Fulbe, its singular Pullo, and in the names of the language Pulaar, Pular, Fulaare, and Fulfulde which are found in the different dialects. As stated above, the term Pulaar is mostly used for the Fulfulde dialect spoken in Senegal and Mauritania (Fagerberg 1984). David W. Arnott, the most well-known British scholar who worked on this language, proposed the more euphonious name **fula**, a form which is used by the Mandinka and Susu in Gambia (Arnott 1970a:1). His proposal is widely used by

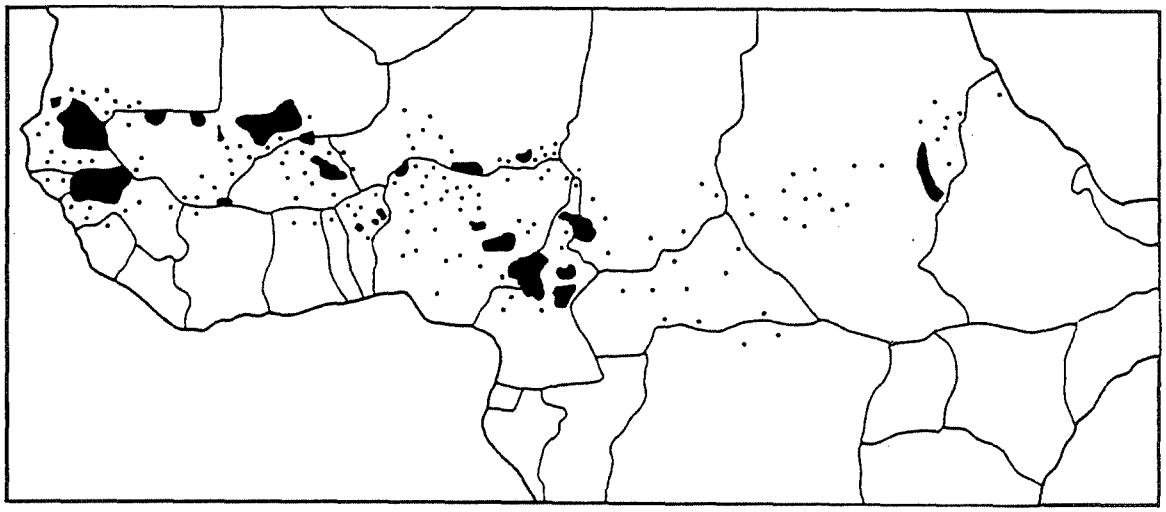
linguists in the English-speaking linguistic community. Presently, a number of linguists working on the language use the term "Fulfulde", the language name used by its speakers in Fuuta Jallon (Diallo 1991) and in most dialects from Mali (Fagerberg-Diallo 1984) and eastwards (e.g. McIntosh 1984, Abu-Manga 1986).

Findings of the present study indicate that the language name Fulfulde is built on a reduplicated stem. The language name combines the stem **ful-**, with the class suffix **-rɛ** of the NDE class. The stem **ful-** is used to indicate anything which refers to a Pullo or Fulbe. The NDE class suffix is used to form language names because of its association with the meaning of the word **daa^{n}dɛ** 'throat; voice; speech; language' (see section 7.2.4). The repetition of the verb root implies that the meaning expressed by the single verb root was not achieved and therefore the action of the verb has to be repeated. The reduplicated forms refer to an incompleteness or imperfection (see section 5.3.3). In Jamaare (Noye 1989:125) the meaning of incompleteness can be found in the word with the reduplicated stem in **pulfulo**, pl. **fulfulɓe**, which is translated as a person who has become a Pullo by adoption, having acquired the language and the customs. So a **pulfulo** is then almost a Pullo, i.e. by language and culture, but not completely, i.e. not by birth. The hypothesis is that the same meaning of the reduplication of the stem **ful-** is present in the language name Fulfulde.

So the name Fulfulde expresses the fact that it is (also) the language of people who have integrated into the Fulbe society, having acquired the language and customs, implying that Fulfulde is not only the language of people who are (mythologically) blood-line related Fulbe. Without the reduplication the combination of the stem **ful-** and a class marker referring to language (NDE class) or word (KA class) would probably have had the meaning 'Fulbe language'. Indeed, in Maasina there is actually another language name: **fulaare** which can be translated as 'Fulbe language'. It is a very poetic name for the language.

1.2 FULFULDE DIALECTS

The Fulfulde language can be described as one continuing chain of dialects, spoken in the whole Sahelian and Sudanese climatic zone of West Africa. The Fulfulde dialects are mutually intelligible. From one village to the next the Fulfulde dialects are perfectly understandable, but when two people from the outer ends meet, they have more difficulties in understanding each other. A Malian Pullo visiting the Ringimaaji in Cameroon was given the nickname Sesesese, because all the time he had to urge the people to speak more slowly: **sɛɛsɛ sɛɛsɛ** 'slowly, slowly', otherwise he could not follow the Ringimaaji Fulfulde from Cameroon.



Areas where Fulfulde is spoken

There are still a number of Fulfulde dialects which have not been the subject of study, and therefore a true dialectal division of all the Fulfulde dialects cannot be given. In the literature a dichotomy has been created between the Eastern and the Western Fulfulde dialects. This division has been based on the comparison of the Fulfulde from Senegal (Pulaar) with the Fulfulde from Eastern Nigeria (Gombe) and Cameroon (Aadamaawa), which have received considerable attention. As it happens, these dialects are spoken at the two outer ends of the Fulfulde language continuum. However, studies of the dialects in-between show that it is not possible to place a clear boundary between the Fulfulde dialects. Some isoglosses distinguishing east from west have been mentioned in the literature, but the study of the geographically intermediate dialect of Maasina already shows the crudity of these isoglosses. Jungraithmayr and Abu-Manga (1989:xxi) give the different verbal conjugations for the completive middle voice as an isogloss for the distinction between western and eastern dialects. However, forms classified as both eastern and western do occur in Maasina.

western dialects	Maasina	eastern dialects
-iima	-iima	-ake
-ima	-ike	-ike
		-oke

It is of course characteristic for a dialect continuum that the linguistic boundaries between the different dialects should be vague. The distinction of the different dialect areas are based on sociological and geographical coherence. The following division of the Fulfulde dialect zones is taken from the work of a group of Malian researchers (MAPE 1983a: 13-14).

	Dialect region, dialect group:	*Where spoken:*
1	Fuuta Jallon	Guinea, Sierra Leone
2	Fulakunda	Cassamance, Gambia, Guinea Bissau
3	Fuuta Tooro	Senegal, Mauritania, Western Mali
4	Maasina	West Maasina, East Maasina, Duwansa (Douentza), Seeno
5	Barani	Barani, Bobo-Dioulasso
6	Liptaako (Volta)	Burkina Faso: South-Tougan, Ouahigouya, Mossi-Gurma, Jelgooji-Liptaako-Gurma, Gaamoobe
7	Sokkoto	West Niger: Say, Wuro-Gelaajo, Dallol Basso, Sokkoto
8	Borgu	Benin
9	Wodaabe	Niger
10	Hausa states	Central Niger, East Niger, Central Nigeria, Northern Katsina, Southern Katsina, Central Kano, the Bororo of Kano and Zaria, Southern Zaria, Plateau, Bauchi, Bornu, Gombe, Eastern Wodaabe
11	Aadamaawa	'Yola, Maayo Ine, Maayo Faran, Hooseere, Benoue, Jamaare (Diamaré), Bagirmi, Bamenda (Eastern Nigeria and Cameroon)

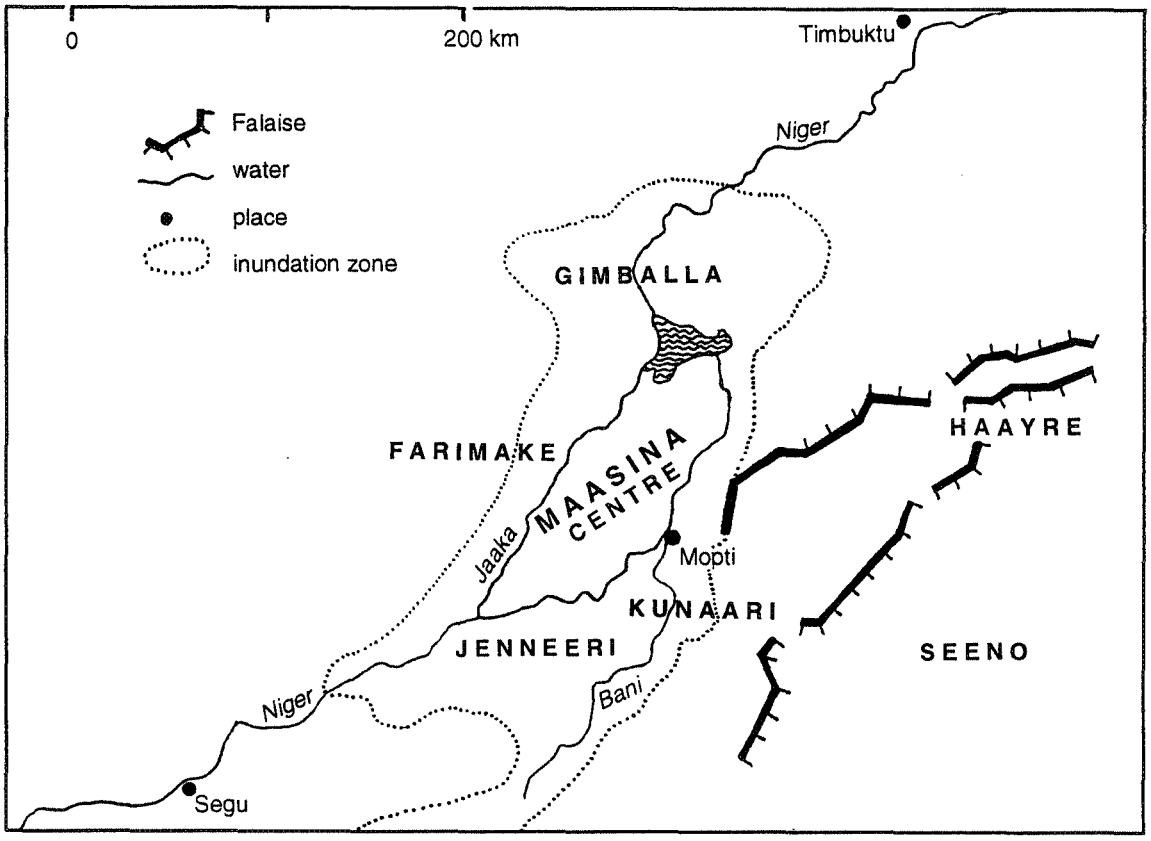
The division above does not include the Fulfulde which is spoken in Sudan, Ethiopia, Chad, Northern Togo, Northern Ghana, and in the Central African Republic. According to Abu-Manga (1986:33) the dominant form of Fulfulde spoken in Sudan is Gombe (Arnott 1970a), which means that the Fulfulde of Sudan would belong to the dialects of the Hausa states. Arnott (1970a:3) classifies Gombe as "central Fulfulde" which is here called the Fulfulde of the Hausa states.

Fulfulde dialect areas in Maasina

In order to establish the approximate boundaries of the Fulfulde dialects in Mali the MAPE research group (1983a:18-36) used a comparative word list of 200 basic words, with an additional list of cultural items, a sociolinguistic test, and small text samples. Because of the relative homogeneity of the Fulfulde variants, the intelligibility test is not a useful criterion for the determination of dialect boundaries (MAPE 1983a:285). The linguistic data were compared using the lexicostatistic method. The conclusion of the research verified to a large extent the initial hypothesis that the dialects would fall into three groups, in the same way as the historical and social division of the Fulbe in Mali falls into three groups: Fuuta, Maasina, and Seeno. The research also showed the existence of some additional enclaves with their individual dialects. The dialects of the Haayre are put between square brackets, this study groups them with Maasina.

Main Fulfulde dialects in Mali (MAPE 1983a:16):

1	Maasina:	Gimballa, Kunaari, Farimake, Fakala, Jenneeri, Kareeri, Kurumaari
2	Seeno:	Jalasagu, Wonkoro,
	[Haayre:	Duwansa, Booni]
3	Fuuta:	Nyooro, Madiina, Geetema, Kayes
4	enclaves:	Kenyeba, Nampaala, Falea, Dilli



Dialect areas in the Inner Niger-Delta

Maasina is often used to denote the areas over which the Maasina empire ruled, thus including Haayre and the Seeno. The present study defines Maasinankoore as both the Maasina spoken in the Inner Niger Delta and in the Haayre, excluding the dialects spoken in Seeno and the Banyagara region. Booni and Duwansa are included in Seeno-Haayre by MAPE, these towns are located in the Haayre which is treated here as a separate region with a Fulfulde dialect which shows more resemblance to Maasinankoore than to Seenonkoore. Seenonkoore is the Fulfulde spoken in Seeno. Prenasalized consonants in Maasina and Haayre have become fully nasalized, i.e. nasal, consonants in Seeno. The verb stem does show initial consonant alternation in Maasina and Haayre, but not in Seeno. The conclusion that the Fulfulde of Maasina and Haayre from one dialect group which is distinct from the Fulfulde spoken in the Seeno is arrived at by looking at the following data provided by the MAPE research:

Maasina	Haayre	Seeno	
ⁿduŋⁿgu	**ⁿduŋⁿgu**	**nuuŋu**	'rainy season'
naaⁿgɛ	**naaⁿgɛ**	**naaŋɛ**	'sun'
ⁿdooⁿdi	**ⁿdooⁿdi**	**nooni**	'ashes'
mi warii	**mi warii**	**mi warii**	'I have come'
ɓɛ ⁿgarii	**ɓɛ ⁿgarii**	**ɓɛ warii**	'they have come'
maⁿdɛ ⁿgarataa	**ⁿdɛy ⁿgarataa**	**mane wartaa**	'when will you come?'
mi hokkii	**mi hokkii**	**mi hokkii**	'I have given'
ɓɛ kokkii	**ɓɛ kokkii**	**ɓɛ hokkii**	'they have given'

It must be noted that the research for this thesis did not take place on such a large scale and in such a vast area as the MAPE research. Fieldwork has been done on the Fulfulde of Gimballa, Kunaari, Jenneeri and in Tenenku and Toggere Kumba, which are included in Maasinankoore. Some work with speakers from the Haayre (Duwansa) has also been included, but when data from this region are used this is always explicitly mentioned.

1.2.1 MAASINA

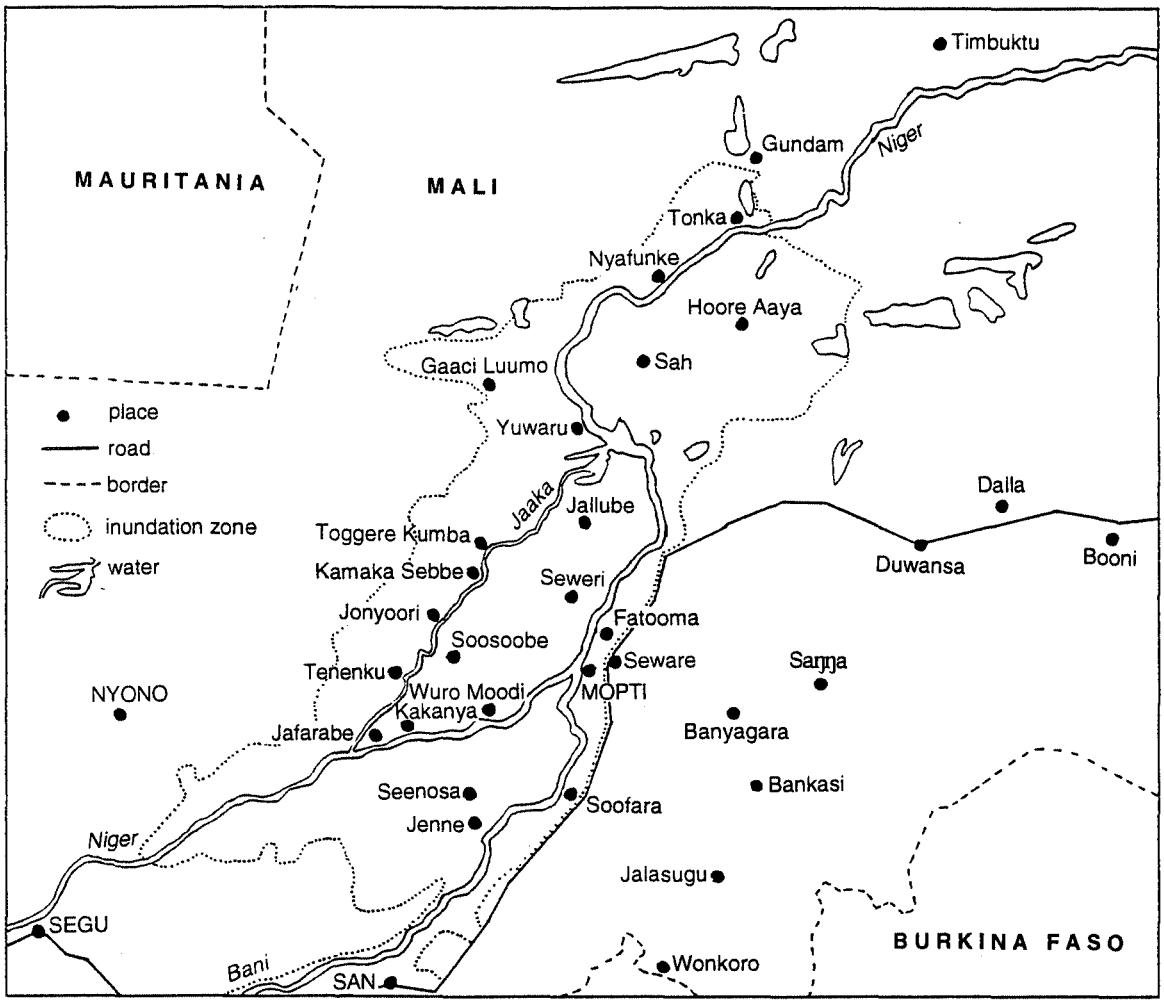
The subject of the present study is Maasinankoore, i.e. the variant of the Fulfulde language which is spoken by the people of Maasina, the Maasinankooɓe. It is also the second language of many people in the area. The exact number of Fulfulde speakers is unknown. In Mali the number of Fulbe is estimated to be 700,000 (MAPE 1983a:16). Another estimate indicates that there are 1,000,000 Fulfulde speakers in Mali (Fagerberg-Diallo 1984:92).

Fulfulde is the dominant language in Maasina. Other important languages are Sorogo (Bozo) and Soninke (Sarakollé, Marka). Songhay is especially important around Jenne. There are a number of other Malian languages which are spoken in Maasina. Bambara, Malinke, French, Tamashek, Dogon, and Maur (Hassanya Arabic) can also be heard in Maasina (DNAFLA 1980). Tioulenta (1991:50) also mentions the existence of a pidgin called "diakois" [French orthography] based on Soninke and Sorogo which is spoken in Ja and a few surrounding villages. A pidgin based on Fulfulde and Sorogo is spoken on the River Jaaka and is called Kaamaka Seɓɓe (Tioulenta 1991:66). In Mopti a special variant of Fulfulde exists where all the noun class concords are replaced by the concord of the 'O class (cf. Tioulenta 1991:201-202). The impression is that this is a speech form used to talk to foreigners and it is sometimes used as a lingua franca: a language used in trade by people (often Bambara) for whom Fulfulde is not the mother tongue. Statements about the sociological composition of its speakers needs further investigation. This variant is not considered to be Maasinankoore.

The study of Fulfulde dialects in Mali by a team of Malian researchers (MAPE 1983a), the language course by Sonja Fagerberg-Diallo (1984) and the sociolinguistic study on the integration of Bambara and French loan-words into Fulfulde by Témoré Tioulenta (1991) have been very useful for the present study. Detailed information about the history and sociology of the Maasina area can be found in a number of academic studies (Ba & Daget 1962, Brown 1969, Gallais 1984, Gardi 1985, Robinson 1985, Sanankoua 1990, Tioulenta 1991, De Bruijn & Van Dijk 1993, 1994, forthcoming), and in the Fulfulde oral literature which is collected in Maasina (Ba et al. 1974, Seydou 1972, 1976a, 1976b, 1991). More titles can be found in the "Bibliographie générale du monde peul" edited by Seydou (1977) and in the "Bulletin de liaison des études peules 2" (1991).

Some historical factors have to be mentioned because they are important for the definition of dialects in Mali. The Maasina empire ruled by Seeku Aamadu from 1818-1853 constituted a homogeneous society during which the status of Fulfulde was enhanced. The basis for the Fulbe hegemony over Maasina was probably already laid after the subjugation of the Soninke by Fulbe clans around the river Jaaka around the middle of the 16th century, at which time Fulfulde started to be the dominant language of the area (Tioulenta 1991). The war between the Maasinankooɓe and the Fuutankooɓe, which lasted from 1862-1893, is another socio-historical factor that enforced a demarcation between the two dialects:

Maasinankoore and Fuutankoore. Maasinankoore borders on Fuutankoore in the west and on Seenonkoore in the east and south east. The regions of Banyagara and Seeno (where Seenonkoore is spoken) were dominated by the Maasina empire, but remained relatively independent since strict control must have been impossible (De Bruijn & Van Dijk 1993).

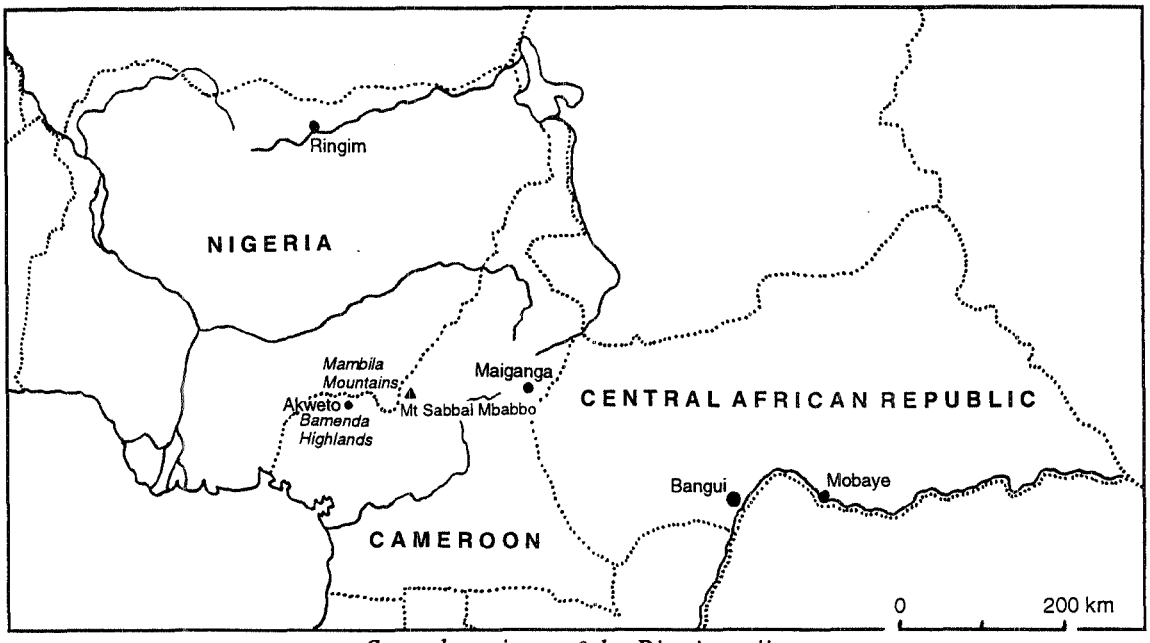


The Inner Niger-Delta

Fieldwork on Maasinankoore was done from November 1987 until May 1988 during which I stayed in Mopti, Jenne, and Seware. Visits were made to Seenosa, Fatooma, Sofara, Banyagara, and Bamako. In May 1989 and in May 1990 I did fieldwork in Paris with a speaker from Toggere Kumba in Mali. In January and February 1991 another period of fieldwork was spent in Toggere Kumba, with visits to Tenenku, Mopti, Duwansa, Dalla, and Bamako. In March 1992 I worked in Dortmund (Germany) with two Fulfulde speakers from Jonyoori and Siro (which is between Tenenku and Jonyoori). The three main consultants were a **pullo ɓaleejo**, a **ceɗɗo** whose mother tongue was Fulfulde, and a **jaawanɗo**. Their utterances have been checked with speakers of other social groups.

1.2.2 RINGIMAAJI

The Fulbe in North West Province of Cameroon are part of the **lenyol** 'lineage' of sedentary Ringimaajiijo (pl. Ringimaaji'en) often abbreviated to Ringimaaji. They are better known by the name Mbororo (Bocquené 1981). In fact, the name Ringimaaji refers to the species of cows which are owned by the Ringimaaji'en. The forefathers of the Ringimaaji'en, or rather the initial breeding stock of their cows, originate from the place Ringim near Kano in Nigeria. The word Ringimaaji'en is made up of the stem **riŋⁿgim**, a plural formation **-aaji** referring to cows, and a class suffix **-ˀɛn** referring to people. The grandfather of the main Ringimaaji consultant had moved into the montane grassfields of the North West Province of Cameroon some seventy years before (information gathered in 1988) and had been taxable to the Laamiiɓo of Ringim in Nigeria. Nowadays the people of the Ringimaaji live in the montane grassfields in Mambila in Nigeria and in the North West Province in Cameroon, some people live in Saɓɓal Mbabbo, some in Maiganga in Cameroon, and some people live around Mobaye in the Central African Republic. According to a Ringimaajiijo from Cameroon the people of Ringim in Nigeria have lost their language and only talk Hausa. He said that they therefore can no longer claim to be Ringimaaji'en.



Some locations of the Ringimaaji

The area in the montane grassfields is very fertile (volcanic sediment). Grazing occurs between 1500 and 2000 metres in the rainy season. In the dry season the cattle are taken into the valleys at about 800 meters (Frantz 1986:17). The lingua franca in Donga-Mantung is Weskos (Pidgin English). The Fulbe in Donga-Mantung were minimally involved with Fombina, Aadamaawa.

During a visit to Cameroon from May to July 1988 and in August 1994 some notes were made on the Fulfulde dialect of the Ringimaaji in Nkambe and Akweto. Some data from the Ringimaaji dialect are used to clarify the historical complications which occur in the initial consonant alternations (Chapter 3).

It is not clear which other Fulfulde dialects are most similar to the Fulfulde of the Ringimaaji. The Ringimaaji dialect shows a similarity with the Gombe dialect described by Arnott and with the Kaceccereere dialect described by McIntosh. Probably the Ringimaaji dialect has to be grouped together with what Arnott calls "central dialects", here called Fulfulde of the Hausa states.

1.3 OVERVIEW OF RESEARCH TOPICS

This study is mainly based on data of a dialect of the Fulfulde language which is spoken in the Inner Niger Delta in Mali, in Maasina. This dialect (Maasinankoore) has so far received only little attention (Fagerberg-Diallo 1984, Tioulenta 1991) and this study is an effort to fill this linguistic gap in the study of Fulfulde. The description is limited to the morphophonology because an important aim of this research is to find explanations for the alternative forms of the Fulfulde noun class suffixes.

The description of the Fulfulde of Maasina is divided into two parts: phonology and word formation. The phonology has been studied to explore the possibility of phonological conditioning of the variant suffix forms (as suggested by Klingenheben 1941, Skousen 1972, and Anderson 1976). However, no phonological complementary distribution of the forms of the noun class suffixes can be found. Previous studies by Mohamadou (1985) and Paradis (1986) indicated that there is a correlation between types of word derivation and suffix forms. The research into this correlation is further elaborated in part II on word formation.

Part I: phonology

In the phonology part different chapters discuss the speech sounds, the consonant alternations, and the syllable.

Chapter two discusses issues such as the ATR vowel harmony, the occurrence of nasalized and laryngealized vowels, the phonetic nature of the laryngealized consonant {**ɓ**, **ɗ**, **ʃ**}, automatic prenasalization of voiced stops which follow a nasal consonant, the phonetic nature and the distribution of the labial approximants {**β**, **w**, **ɥ**}.

The phonological changes which occur word initially in verbs and nouns, without an apparent phonological context which conditions these changes, are further elaborated on in Chapter three. Comparison of Maasinankoore (Mali) with other dialects like Ringimaaji (Cameroon) and Pulaar (Mauritania and Senegal) shows that paradigm levelling is going on in words with the initial continuant consonants [**w**] and [**y**]. For example, in Maasina reanalysis is going on, replacing the alternation series **w** : **g** : ^{n}**g** with **w** : **b** : ^{m}**b** before the round vowels {**o**, **ɔ**, **u**} in productive derivations. This paradigm levelling occurs to regularize the word initial changes and it causes the occurrence of the following complicated consonant alternations in the stem **wɔf-** 'to bark'.

verb: [**w-b-^{m}b**]		noun: [**w-g-^{n}g**]	
rawaa^{n}du ʔana wɔfa	'the dog is barking'	**wɔfaa^{n}gɔ**	'(one sound of) barking'
dawaaɗi ʔana ^{m}bɔfa	'the dogs are barking'	**gɔfaali**	'(sounds of) barking'

Attention is also given to stem-final consonant alternations, especially to Klingenheben's hamza assimilation in words like **dɛbbɔ** / **rɛwɓɛ** 'woman'. The assimilation of the

underlying stem final [**w**] to the underlying suffix initial consonant [**ʔ**] has resulted in the long plosive [**bb**]. The same process (merger of a glottal stop with a continuant consonant) is reconstructed in word initial positions where an initial plosive consonant occurs. Restrictions on the syllable structure are responsible for the shortening of an initial long plosive to a single plosive consonant in word initial (i.e. syllable initial) position.

The syllable plays an important role in the phonological changes attested in Fulfulde. The whole of Chapter four is therefore dedicated to the influence of the syllable on the possible length of vowels and consonants, the possible occurrence of epenthetic vowels, the possible sequence of segments according to their sonority, the metrical structure of words and their stress assignment rules and intonation patterns. The study of the syllable in Fulfulde is based on views expressed in studies by Clements & Keyser (1983), Hyman (1985), Hayes (1985), Schadeberg (1987), and Venneman (1988).

Part II: word formation

The part on word formation contains chapters on the verbal system and adverbials; the grade system (of the suffixes); the nominal classes; and the nominal modifiers and pronominals.

The structure of the verb is described in Chapter five. Many verbal markers which appear in the formation of verb forms reoccur in the formation of nouns and other nominals. It is therefore necessary to understand the structure of the verb stem and the verbal markers which occur in this verb stem, in order to understand the word formation of nominals in Fulfulde. An attempt is made to describe the semantic nature of the verbal extensions. Maasinankoore has about thirty verbal conjugational suffixes. These are analyzed as combinations of a more limited number of underlying elements, arrived at by looking for a one-to-one correspondence in form and meaning of the semantic categories of mood, voice, tense, aspect, polarity and discourse expressed in the different verbal conjugational suffixes.

The preceding description of the morphophonology of Fulfulde serves as the basis for explaining the problem discussed in Chapter six: how does one explain the different forms of the noun class suffixes in Fulfulde. The assumption has often been that the different suffix forms were allomorphs. The discovery of the phonological conditioning for this allomorphy was thought to be only a matter of time. However, the issue of the suffix grades has been discussed here from a new angle: the different forms of the noun class suffixes are taken to represent different meanings. The different suffix forms are used in different semantic types of word derivation. In this study I demonstrate that the different noun class suffixes, e.g. -**ɔ**, -**wɔ**, -**gɔ**, -^{n}**gɔ** for the NGO class, are actually compound forms of a grade marker and a class marker. The grade markers carry derivational meanings. The grade B marker is cognate with the associative verbal extension, the grade C marker is cognate with the circumstantial verbal extension, and the grade D marker is cognate with the referential marker. Grade A is unmarked, its suffix form consists underlyingly only of the class marker. The meanings expressed in the grade markers combine with the underlying form of the class suffix, thus resulting in four different suffix forms which are not allomorphs, but which convey different (derivational) meanings.

When all the words which are formed with a suffix form of grade A are compared, an overwhelming tendency that they describe "objects" can be discovered, i.e. not only things

one can touch or see but also the cognate pivot of a verb, i.e. the cognate object or the unmarked object or the cognate state of a stative verb.

things to touch or see:	**hin-ɛrɛ ⁿdɛ**	'nose'		
	faɗ-ɔ ⁿgɔ	'sandal'		
cognate pivot of verb:	**ʔuj-iri**	'castrate (bull)	**ʔuj-udɛ**	'to castrate'
	jim-ol ⁿgol	'song'	**yim-udɛ**	'to sing'
	fij-ɔ ⁿgɔ	'game'	**fij-udɛ**	'to play'
cognate state of verb:	**ʔanⁿd-al ⁿgal**	'knowledge'	**ʔanⁿd-udɛ**	'to know'
	sɛy-ɔ ⁿgɔ	'happiness'	**sɛy-aadɛ**	'to be happy'
	muŋ-al ⁿgal	'patience'	**muŋ-udɛ**	'to be patient'

The conclusion is that different meanings are associated with the different grades. The meaning generally present in grade A words is objective, an associative meaning is found in words derived with a suffix form of grade B, grade C nouns tend to have a circumstantial meaning, and grade D nouns have a subjective meaning.

In Chapter seven all noun classes are discussed. The hypotheses concerning the semantic difference between the different suffix grades are demonstrated for each class and semantic principles are searched for in the grouping of nouns within each particular class. The investigation of the semantics of the class suffix has been inspired by the studies of Corbett (1991), Craig (1986), Dixon (1982), Lakoff (1987), and Spitulnik (1987) and by discussions with Felix Ameka (Leiden University), David Wilkins (Max Planck Institute, Nijmegen), and Issa Diallo (University of Ouagadougou). A noun class is thought to combine concepts, either by means of a possible shared semantic feature of the nouns occurring in that class or by their occurrence in the same semantic field. Many associations are culture specific, as is shown in the networks representing the semantic linking of the different nouns. For example, in the NDI class the semantic field of capital (wealth which can be used to produce more wealth) links together a number of nouns like **jawdi** 'wealth', **ⁿgaari** 'bull' (used to get cows pregnant and produce more cattle), **ʔaawdi** 'seed' (used for sowing to produce more grain), and **leydi** 'land' (used for herding cattle and cultivation to produce more cattle and grain). The association of cattle, grain and land with wealth is culture specific to the Fulbe. Semantic associations proved very fruitful in the construction of the semantic networks which depict the semantic motivation within a noun class, i.e. why certain nouns are grouped in a certain noun class.

Chapter eight describes the other nominal word classes. The adjectives give some further evidence for the semantic distinction between the suffix grades. In the formation of the basic colour terms, red, black and white, another link can be found between the culture of the Fulbe and the Fulfulde language. These adjectival colour terms are formed on stems combining with grade B suffix forms. The stems are the names of cattle given according to their skin colour. In Maasina the grade A disyllabic words **wɔɗɛ**, **ranɛ**, and **ɓalɛ** exist as terms with which one calls a red, white, or black cow respectively. The vowel **-ɛ** of the NGE class, referring to cows can be found in the adjectives of colour, modifying nouns of all classes.

laana ranɛɛwa ka	'the white boat'
ⁿgaari raneeri ⁿdi	'the white bull'
baafal ɓɔdɛwal ⁿgal	'the red door'
naggɛ wɔdɛɛwɛ ⁿgɛ	'the red cow'
rawaaⁿdu ɓaleeru ⁿdu	'the black dog'
seesi ɓalɛɛjɔ ʔɔ	'the black chair'

This merely indicates that the skin of cattle is an important domain in which colour is distinguished. Numerous etymologies discussed also make use of cultural information, these hypotheses will have to be verified in for example cognitive association tests with speakers of Fulfulde. The pronominals complete the description of the formation of words in Fulfulde.

This study moves from the phonology to the morphology of Fulfulde. Considering the fact that phonology is the study of speech sounds which distinguish meaning, and considering the fact that morphology is the study of the smallest units of speech which convey meaning, it follows that at each stage the study of meaning (semantics) plays an important role in the functioning of the elements in the system.

1.4 THEORETICAL AND METHODOLOGICAL PRELIMINARIES

This study is mainly based on spoken Fulfulde. The utterances were transcribed in a systematic phonetic transcription during several periods of fieldwork. The questionnaires provided by Bouquiaux and Thomas (1987) proved to be very useful in this respect. The lexical data thus collected have been compiled in a data base with rough translation equivalents. The computer facilitated the search, listing and comparison of words with certain consonant sequences, words within one grade, and words within one class. In the following paragraphs I outline the theoretical models used in the different parts of this study.

Part I Phonology

The model of Autosegmental phonology is used to describe the phonological processes (Goldsmith 1990). The concept of well-formedness conditions (WFC) and their associated automatic phonological rules (A-rules) is taken from Stewart (1983). The well-formedness conditions capture the phonemic patterns of the language (Stewart 1983:123). The well-formedness condition motivates the application of the associated A-rule. The A-rules show what happens where a well-formedness condition would otherwise be violated (Stewart 1983:116). The nature of the A-rules is the same as the concept of automatic alternation described by Hockett:

> "Some alternations are such that if they did not take place, the phonemic pattern of language would be different from what in fact it is. Alternations of this kind are called *automatic*. One of the alternate shapes is the *base form*, and the other or others are said to replace the base form under specific conditions, where, otherwise, there would be an arrangement of phonemes contrary to the phonemic pattern of the language."
> (Hockett 1958:279-280)

Next to A-rules, I distinguish other phonological rules (P-rules) which are not automatic and often have exceptions. Unlike A-rules, the P-rules can be restricted to a morphological or lexical domain. Because of this P-rules are not exhaustive: a) the motivation for the application of a P-rule is not always clear, and b) the domain in which the P-rule applies is not always predictable.

The use of well-formedness conditions of the syllable structure to motivate certain phonological alternations made it impossible to strictly follow the theory of Autosegmental phonology, since the syllable does not play a role in this model. As a result, [vocalic], [consonantal] and [sonorant] are not described as binary features. I use the terms "vocalic" and "consonantal" to refer to the status of a time slot. The consonantal or vocalic status of a time slot follows from the combination of autosegmental features attached to this time slot. Sonority is treated as a multi-valued feature. Certain phonological constraints in the language show that some consonants are more sonorant than others. The importance of the degree of sonority of consonants for the phonological rules in Fulfulde has already been demonstrated by Paradis (1986, 1987b, 1992). In describing similar sonority constraints for the Fulfulde of Maasina, I have also tried to show the relation between these sonority constraints and the syllable structure.

The importance of rhythmic structures for the description of stress assignment (Hayes 1985) makes it necessary to expand the Autosegmental phonology with a metrical system. In this, I follow Goldsmith (1990) who expanded Autosegmental phonology with the arboreal metrical system.

Part II Word formation

Having been trained in morphology by the late Professor Jan Voorhoeve, the model of morphological analysis which I use to describe the processes of word formation in Fulfulde shows resemblance to the structuralist approach. Rather than being eclectic, the linguistic approach used to describe the Fulfulde of Maasina can be said to be ecumenical (Ameka 1991:14), preventing theoretical contradictions. My descriptions of word formation are based on the presumption of underlying basic units of meaning (morphemes) and the phonological changes which these morphemes undergo in context, i.e. in combination with other morphemes.

However, morphology is not the only level that studies meaning, in fact, all linguistic sub-disciplines are concerned with the interaction of form and meaning. Linguistic sub-disciplines such as phonology, morphology, and syntax cannot be practised without referring to semantics since their subjects of study are defined and distinguished by meaning (Wierzbicka 1988:1-3). Phonology studies speech sounds which distinguish meaning. Morphology studies units of speech sounds which encode units of meaning. Syntax studies phrase structures which convey meaning. Therefore, I consider meaning relevant to all linguistic sub-disciplines.

Much attention is given to the semantics of the categories expressed in Fulfulde. The analyses of the verbal conjugational suffixes, the suffix grades, and the nominal classes are based in semantics. To describe the semantic categories I have made use of Prototype theory (Rosch 1973, 1978, Wierzbicka 1985, Taylor 1989). Prototype theory proposes an alternative definition of categories which is different from the "classical theory" of categorization. The latter approach is called "classical" because it goes back to Aristotle's

definition of categories and because this approach has dominated different disciplines (including structural and autosegmental approaches of linguistics) throughout most of the twentieth century (Taylor 1989:22). The following table provides a rough comparison of the two approaches of categorization (based on Arensen 1992:109, Dixon 1982, Lakoff 1987, Taylor 1989, Wierzbicka 1985).

Classical theory:	Prototype theory:
Categories are defined in terms of a conjunction of necessary and sufficient features	Categories may be defined by family membership, members of a category share some attributes with a prototypical member but not necessarily all attributes with all members
Features are binary	Members of a category may show gradience
Categories have clear boundaries	Categories typically have fuzzy edges and might even overlap
All members of a category have equal status	Members of a category may be more or less representative
Features are primitive	Members may be linked by association in the same domain of experience
Features are universal	Categories may be defined through a background framing, i.e. defined on the basis of human experience — physical, perceptual, cultural

Prototype theory provides motivations and explanations for category membership and it is an important innovation in the study of noun class systems. It enlarges the number of possible semantic principles which may underlie the categorization expressed by the noun classes. In Chapter seven I put forward hypotheses for the semantics of the Fulfulde noun classes. The recognition that noun class affixes express meaning which convey more than the mere marking of syntactic co-reference has led to another discovery: a semantic correlation between words formed with the same suffix grade (see Chapter six).

Part I

Phonology

Chapter two
Speech sounds

2.1 FULFULDE SPEECH SOUNDS

The vowel inventory of the Fulfulde of Maasina is represented in the following table.

			–round –back +front	–round –back –front	+round +back –front
+high	–low	+ATR	i		u
–high	–low	+ATR	e		o
–high	–low	–ATR	ɛ		ɔ
–high	+low	–ATR		a	

Nasalized vowels, voiceless vowels, and laryngealized vowels occur in Fulfulde too. They can be predicted from underlying phonological structures. The consonant inventory of the Fulfulde of Maasina is represented in the table below.

	labial	labiovelar	alveolar	palatal	velar	glottal
voiceless stop	p		t		k	
voiced stop	b		d		g	
voiceless affricate				c		
voiced affricate				j		
voiced lateral			l			
voiced trill			r			
voiceless fricative	f		s			
voiced approximant		w		y		
voiceless approximant						h
laryngealized stop	ɓ		ɗ			
laryngealized affricate				ɟ		
glottal stop						ʔ
nasal stop	m		n	ɲ	ŋ	
prenasalized stop	ᵐb		ⁿd	ⁿj	ᵑg	

The speech sounds are represented by their orthographic symbols. The symbol [c] represents the phonetic affricate sequence [cʃ]. The symbol [j] represents the phonetic affricate sequence [dʒ]. The symbol [ɟ] represents the phonetic affricate sequence [d̪ʒ]. The phonetic realization of laryngealization is represented with a tilde under the segment [̰].

Several issues have been raised in the discussion about the phonemic status of the above consonants and vowels in the Fulfulde literature. The description of length, the status of the

prenasalized consonants, and the nature of the affricates have been interpreted in different ways. All three phenomena: length, prenasalization, and the complex structure of affricate segments are related to the organization of features in time within a phoneme. The analysis of these time related issues are discussed in section 2.3 in an autosegmental framework.

2.2 THE PHONOLOGICAL FEATURES

The Fulfulde speech sounds are analyzed as bundles of features (organized on autosegmental tiers). The features are binary except for the acoustic feature of sonority which is placed on a hierarchical scale (see section 4.4). The six distinctive places of articulation used to describe consonants consist of the bundling of the following feature values.

	labial	labiovelar	alveolar	palatal	velar	glottal
coronal	–	–	+	+	–	–
anterior	+	+	–	–	–	–
high	–	+	–	+	–	–
back	–	+	–	–	+	–
front	–	–	–	+	–	–
round	–	+	–	–	–	–
low	–	–	–	–	–	+

The place features for the vowels are slightly different from those of consonants. There are four feature tiers that are common for both consonants and vowels: [high], [back], [round], and [low]. The tiers specifying [coronal] and [anterior] are only specified for consonants, not for vowels. The autosegmental feature tier ATR is only linked to vowels, not to consonants. There is no separate consonant tier and vowel tier but the anterior and coronal tier are only linked to consonants and the ATR tier is only linked to vowels. The following figure gives the place feature specification of vowels in Fulfulde.

	a	**ɛ**	**e**	**i**	**ɔ**	**o**	**u**
high	–	–	–	+	–	–	+
back	–	–	–	–	+	+	+
round	–	–	–	–	+	+	+
front	–	+	+	+	–	–	–
low	+	–	–	–	–	–	–
ATR	–	–	+	+	–	+	+

The occurrence of both vowels and consonants on the feature tiers [high], [back], [round], and [low] is necessary for the explanation of phonological changes where vowels influence the place features of adjacent consonants.

The instructions to the vocal cords are represented by the autosegments [constricted], [voice], and [spread]. Constricted means that the arytenoids are brought tightly together so that the vocal cords cannot vibrate (either fully or partially). Spread means that the vocal cords are apart (either fully or partially) allowing for the air to pass freely. Voice means that the vocal cords are vibrating, either over the full length or only the ligamental part. The

consonant [**h**] is whispered, i.e. the vocal cords are together or narrowed except between the arytenoids (Ladefoged 1971:8). The feature [–voice] is realized as whisper for the consonant [**h**]. The following figure gives the possible configurations of the voice features.

	voiced	voiceless	laryngealized	glottal stop
voice	+	–	+	–
spread	–	+	–	–
constricted	–	–	+	+

The feature [+nasal] occurs in nasal and prenasalized stops and in nasalized vowels. Nasalized vowels are (often optional) phonetic realizations of a vowel-nasal sequence in word final position.

The different manners of articulation of consonants are described with the features [continuant], [lateral], [vibrant], and [strident]. Vowels have the same autosegmental representation as approximants. Voiced approximants (glides) and vowels only differ in sonority, a scaled feature that is described in section 4.4. The following figure shows the values of the manner features of a number of phonological categories.

	vowel	approximant	trill	lateral	fricatives	obstruents
continuant	+	+	+	–	+	–
lateral	–	–	–	+	_	–
vibrant	–	–	+	–	_	–
strident	–	–	–	–	+	–

The obstruents can be divided into several categories. Obstruents can be voiced, voiceless, laryngealized, glottal, nasal, prenasalized, and affricate in Fulfulde. They differ from each other according to the type of voicing, the absence and presence of nasality, and their temporal structure. Prenasalized consonants and affricates are obstruents with a complex time structure. They are analyzed with a sequence of two different values on one tier during one time slot.

	affricate obstruents			prenasalized obstruents
	c	**j**	**ɟ**	{^{m}**b**, ^{n}**d**, ^{n}**j**, ^{n}**g**}
nasal	–	–	–	+–
continuant	–+	–+	–+	–
lateral	–	–	–	–
vibrant	–	–	–	–
strident	+	+	+	–
voice	–	+	–	+
spread	+	–	–	–
constricted	–	–	+	–

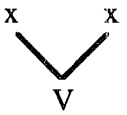
Affricates are marked by the sequence [–continuant][+continuant] within one time slot. Prenasalized consonants are analyzed with a [+nasal][–nasal] sequence within one time slot. The combinations of the different feature specifications of the consonants and vowels

in Maasina are listed in Appendix 1. Also included in the appendix are the consonants [ɥ], [β], [ʃ], and [ʒ]. The consonant [ɥ] is in complementary distribution with [w] in Maasina. The bilabial fricative [β] occurs in dialects spoken in Cameroon, i.e. in Aadamaawa and in the dialects of the Dageeja and the Ringimaaji. In Maasina, the palatal fricatives [ʃ] and [ʒ] only occur as the final parts of a palatal affricate. The voiceless palatal fricative [ʃ] occurs in Gombe and Ringimaaji and corresponds in a regular manner to the affricate [c] in other dialects such as Maasina.

2.3 REPRESENTATION OF SEGMENTS WITH TEMPORAL STRUCTURE

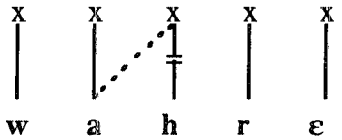
2.3.1 VOWEL LENGTH

A long vowel is represented as a bundle of features linked to two time slots. The following figure gives the autosegmental representation of a long vowel.



Length is not considered as a feature of the vowel itself but it follows from the organization of the vowel features on the timing-tier over two time slots, thus indicating a longer realization in time.

A long vowel can already be long in the underlying structure of the morpheme. Sometimes a long vowel is the result of a phonological derivation whereby the feature bundle of a certain vowel is linked to an adjacent time slot that has been delinked from its underlying content.

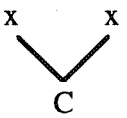


The word **waarɛ** 'beard' is derived from the morphemes ***wah** and ***rɛ** that are stored in the lexicon with their underlying features and time slots. At the surface, the consonant [**h**] cannot occur adjacent to another consonant and it cannot occur in syllable final position. When the consonant [**h**] is delinked because it occurs in syllable final position, the time slot of the consonant [**h**] will be linked to the preceding vowel . Thus the vowel [**a**] is lengthened because it fills the time slot underlyingly linked to [**h**] in the morpheme ***wah**.

The representation of a long vowel as one bundle of autosegments linked to two time slots does not only describe the length of a vowel, it also gives insight into the genesis of the long vowels in such phonological derivations as demonstrated above. Vowel length is written as a sequence of two identical vowels in the orthographic representation of Fulfulde.

2.3.2 LONG OR GEMINATE CONSONANTS

A long or geminate consonant is represented as a bundle of features linked to two time slots. The following figure shows the autosegmental representation of a long consonant.

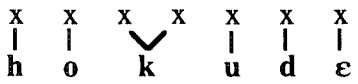


Consonants that have in their realization a closure in the oral or nasal or pharyngeal cavity can occur as long consonants. Length is realized phonetically by prolonging the time of the closure before the release of the (obstruent) consonant. Fricatives and approximants can occur as geminate consonants but such [+continuant] geminates are rare in Fulfulde. The following table shows the consonants which can be long in Maasina.

	labial/labiovelar		alveolar	palatal	velar/glottal
voiceless stop	**pp**	**tt**	**cc**	**kk**	
voiced stop	**bb**	**dd**	**jj**	**gg**	
laryngealized stop	**ɓɓ**	**ɗɗ**	**ʄʄ**		
nasal stop	**mm**	**nn**	**ɲɲ**	**ŋŋ**	
prenasalized stop	**m^mb**	**n^nd**	**$ɲ^n$j**	**$ŋ^n$g**	
voiced lateral stop		**ll**			
not frequent, rare:					
voiced trill		**rr**			
glottal stop				**ʔʔ**	
voiced continuant	**ww**		**yy**		

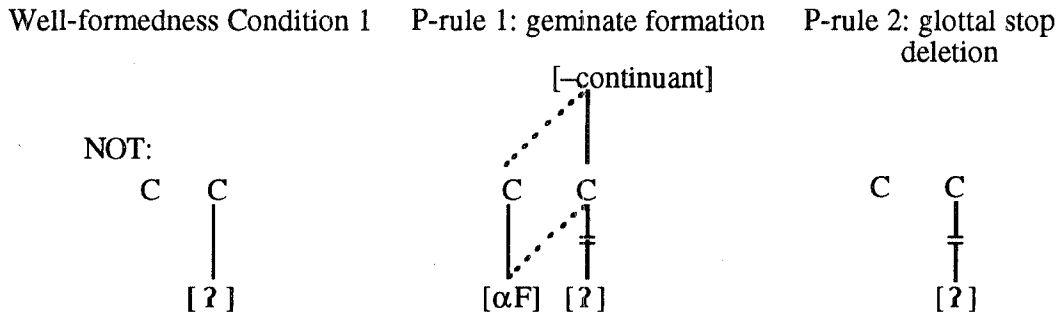
The voiceless continuants [**f**], [**s**], and [**h**] do not occur as long consonants. The phonetic realization of the geminate [**rr**] is a repeated articulation of the trill over a longer period of time, a realization that is slightly different from the other geminates. The geminate [**rr**] has a limited distribution. In the Fulfulde dialect of Fuuta Tooro, the trill [**r**] cannot occur as a geminate consonant (Paradis 1986:218). In the dialects of Liptaako (Bidaud & Prost 1982:16), Kaceccereere (McIntosh 1984:12), and Gombe (Arnott 1970a:384) the long [**rr**] does occur but not very frequently.

A long consonant can be long in the underlying structure of the morpheme or it can be the result of a phonological derivation whereby the feature bundle of a certain consonant is linked to an adjacent time slot that has been delinked from its underlying content. The following example shows a geminate consonant that is present in the underlying structure of the morpheme ***hɔkk-** 'give' in the infinitive **hokkudɛ** 'to give'.



Often long consonants are the result of merger with the glottal stop [ʔ] which cannot occur adjacent to other consonants. This is described in Well-formedness Condition 1 and P-rule

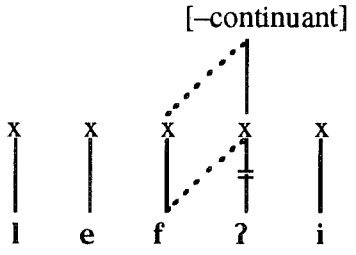
1. The ill-formed sequence of a consonant followed by a glottal stop can also be repaired by deletion of the glottal stop as described in P-rule 2.



The fact that there are two competitive repair rules that avoid a consonant preceding a glottal stop can be demonstrated in the alternative plural formations of the following words.

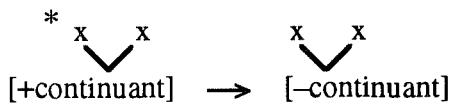
		P-rule 1	P-rule 2		singular
naw+ʔɛ	->	**nabbɛ,**	**nawɛ**	'ponds'	**naw-rɛ**
nɛw+ʔɛ	->	**nɛbbɛ,**	**nɛwɛ**	'hand palms'	**nɛw-rɛ**
laaw+ʔi	->	**laabi,**	**laawi**	'ways'	**laaw-ol**

In P-rule 1 the features of the glottal stop except for the feature [–continuant] are delinked when the glottal stop occurs in the underlying structure adjacent to another consonant. Its time slot is occupied by the features of the adjacent consonant. The merger of any consonant with a glottal stop results in a [–continuant] long consonant. The following example shows the phonological derivation of the long consonant [**pp**] from a merger of [**f**] and [ʔ] in the underlying structure of the word **leppi** 'strips' (< **lɛf+ʔi**).

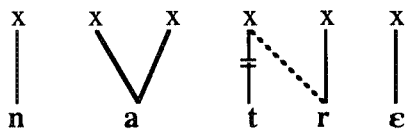


The features of the consonant [**f**] and the only remaining feature [–continuant] of the glottal stop merge into one [–continuant] consonant [**p**] that occupies both time slots of the underlying consonants [**f**] and [ʔ], thus forming the long consonant [**pp**].

Paradis presents a different analysis for this [**pp**] sequence. She describes how the [+continuant] fricative [**f**] occupying two time slots is strengthened because of the status of geminate consonants. Paradis (1986:284) has stated a rule that says that any consonant that is linked to two time slots is [–continuant]. Paradis (1986:284) represents the rule describing the strengthening of geminates in the following way:



This rule states that a [+continuant] consonant becomes [–continuant] when it is lengthened. In this study I propose merger with an underlying glottal stop as an explanation for the feature [-continuant] of derived geminates because [+continuant] geminates [**ww**], [**yy**], and [**rr**] do occur in Maasina and because other geminates are often the result of merger of two underlying consonants (see section 4.5.4). The following example shows the occurrence of the geminate consonant [**rr**] as a result of assimilation in the word **naarrɛ** < ***naat+rɛ** 'flood, entrance of water'.



The geminate [**rr**] occurs because the consonant [**t**] cannot occur in syllable final position preceding a more sonorant consonant [**r**] in the Fulfulde of Maasina. The consonant [**t**] is delinked and its time slot is associated with the features of the adjacent consonant [**r**], thus becoming a long rolling trill [**rr**].

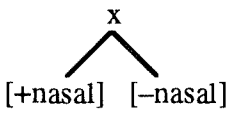
There is no reason why the [+continuant] consonants could not be long. And indeed some words with a [+continuant] long consonant are attested in Maasina.

ⁿdawwal	'ostrich'	also **ⁿdawuwal**
ʔɛyyɔ	'yes, indeed'	
'gɛrral'	'fowl'	

The fact that long consonants in Fulfulde are usually [–continuant] may have something to do with the historical developments of the language. The [-continuant] feature of most long consonants could have resulted from the fact that fricatives and approximants developed historically from intervocalic stops. The long obstruents remained [–continuant].

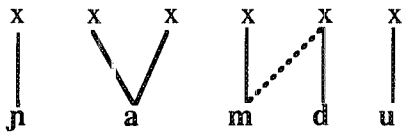
2.3.3 PRENASALIZATION

A prenasalized consonant is represented as a bundle of features linked to one time slot whereby two different values of the autosegmental feature nasal are linked in sequence to this single time slot.



Prenasalized consonants are always voiced in Fulfulde. The following autosegmental representations describe the four prenasalized consonants {**ⁿd**, **ᵐb**, **ⁿj**, **ⁿg**} respectively.

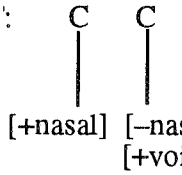
A prenasalized consonant can be present in the underlying structure. A prenasalized consonant can also be derived from a sequence of a nasal consonant followed by a voiced plosive consonant. The following example shows the derivation of the prenasalized consonant [^{n}**d**] in the word **ɲaam^{n}du** < ***ɲaam-du** 'food; way of eating'.



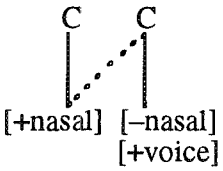
The feature [+nasal] spreads from the segment [**m**] to the segment [**d**]. The feature [–nasal] of the voiced stop is not de-linked. The result is a [+nasal][–nasal] sequence within the time slot of the voiced stop. This initial nasal part of the voiced stop [^{n}**d**] is linked to the place features on the time slot of the alveolar [**d**]. The prenasalization of voiced stops is described by the following Well-formedness Condition and A-rule.

Well-formedness Condition 2

NOT:



A-rule 3: prenasalization



The ill-formed structure [nasal] [voiced stop] is prevented by prenasalization. A-rule 3 states that the feature nasal spreads to the following plosive consonant. The rule of nasal spreading to voiced stops is an automatic phonological rule to which there are no exceptions. The automatic nature of this phonological prenasalization rule has also been described by Gaden (1913:2-3) and Klingenheben (1963:12). This rule is important for the analysis of sequences of nasal and (voiced) plosive segments.

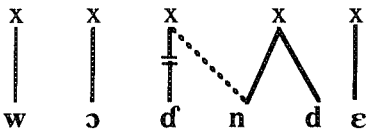
The analysis of different nasal-voiced plosive sequences

In a phonetic study on the length of sequences of nasals followed by a voiced plosive segment in the Fulfulde of 'Yola spoken in Nigeria (Breedveld 1988:59), I concluded that there was no phonetic difference between a NC sequence (a nasal followed by a voiced plosive), a ^{nn}C sequence (a long prenasalized consonant), and a N^{n}C sequence (a nasal followed by a prenasalized consonant) as distinguished by Arnott (1970a:385) for the Fulfulde of Gombe (Hausa states, Nigeria). I only found a phonetic difference between a sequence ^{n}C (a prenasalized consonant) on the one hand and the "long" sequences ^{nn}C, N^{n}C, and NC on the other hand. The controversy revolves around the question of whether it is possible to make a phonetic (!) distinction between the sequences **mb** vs. **m^{m}b**, **nd** vs. **n^{n}d**, **ŋg** vs. **ŋ^{n}g** and **ɲj** vs. **ɲ^{n}j** or not. Here it is claimed that such a phonetic distinction is not present in Fulfulde because an automatic phonetic rule makes a voiced consonant prenasalized when preceded by a nasal.

In Bamako I performed a small recognition test with the words **/wonde/** 'to be' and **/wonnde/** 'another' (orthography used in Mali). Two Fulfulde speakers were placed opposite each other. One of them got a piece of paper on which two sentences were written in which the two different words were given. The other one was not allowed to see the paper.

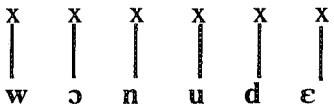
Mali orthography	translation	phonetic pronunciation
1. **huunde <u>wonnde</u>**	'another thing'	**[huu^{n}dɛ wɔn^{n}dɛ]**
2. **<u>wonde</u> ɗoo welaa**	'to be here is not nice'	**[wɔn^{n}dɛ ɗɔɔ wɛlaa]**

The one with the paper had to pronounce only the underlined word without pronouncing the context of the sentence indicated. The listener could not see which sentence was indicated. The listener had to indicate which word he heard: **/wonnde/** 'another' or **/wonde/** 'to be'. Many times the listener could not identify the word when pronounced in isolation. The explanation for that is homonymy. It is impossible to identify the words in isolation because they are pronounced the same way, i.e. as **[wɔn^{n}dɛ]**. The words can only be differentiated using contextual semantic information. In free speech the verb **/wonde/** 'to be' is frequently pronounced as **wonudɛ**. Speakers use the insertion of the active voice marker in the infinitive as a strategy to avoid this homonymy which is a result of the phonological rules that apply to their underlying structures. The word **wɔn^{n}dɛ** 'another' is formed with the morphemes ***wɔɗ** and ***^{n}dɛ**, the prenasalized consonant is present in the underlying structure. The consonant **[ɗ]** is delinked because it cannot occur in syllable final position and its time slot is linked to the nasal segment of the prenasalized consonant **[^{n}d]**.



'another'

The word **wɔn^{n}dɛ** 'to be' combines the verb stem ***wɔn** and the infinitive marker ***dɛ**. The active voice marker **-u-** preceding the infinitive maker is often omitted when the stem final consonant is allowed in syllable final position.



or

'to be'

The prenasalized consonant in **wɔn^{n}dɛ** 'to be' results from the application of the phonological rule that spreads the feature nasal to any following voiced consonant. The homonymy of these two words which differ in their morphological underlying structure has caused confusion between the analysis of the underlying and the surface forms. This confusion has penetrated the orthography of Fulfulde. In the orthography used in Mali the single prenasalized consonants are written as NC, the sequences of a nasal and a prenasalized consonants are written as NNC except when this long sequence occurs at the end of infinitives where it is written as NC again. In the literature different other orthographies are used (Breedveld 1988). For example in the Nigerian orthography all nasal plosive

sequences are written NC, whether it is a single prenasalized consonant or a sequence of two consonants (a nasal followed by a prenasalized). To a large extent the short and long nasal-plosive sequences are in complementary distribution. This could be the justification for the fact that in the Nigerian orthography all nasal-plosive sequences are written NC.

The distribution of different nasal-voiced plosive sequences

The distribution of the phonetically distinct long and short nasal-plosive sequences is almost complementary. The long sequences mostly occur intervocalically after short vowels; the prenasalized consonants mostly occur word initially or after long vowels. The alveolar segments [**n**] and [**d**] are taken as examples but the generalizations also apply to the labial, palatal, and velar nasal-plosive sequences. The general distribution of nasal-plosive sequences is the following:

ⁿd (short) :		**nⁿd** (long) :
VV__	#__	V__
waaⁿdu 'monkey'	**ⁿdaar** 'look!'	**ʔanⁿdal** 'knowledge'

There are however some exceptions to this general distribution.

EXCEPTION 1: The following words are found with a short vowel followed by a short nasal-plosive sequence (or prenasalized consonant).

maⁿdɛ	'when'
hɔⁿdɛ	'which' (NDE class)
hɔⁿgɛ	'which' (NGE class)

These question words are formed with two morphemes: a question marker **ma-** or **hɔ-** (as in **hɔ-tɔ** 'where' and **hɔ-nɔ** 'how') combines with the class concord **ⁿdɛ** (NDE class) or **ⁿgɛ** (NGE class). It is not uncommon for deictic forms to be phonologically aberrant.

EXCEPTION 2: There are a number of nouns where a short vowel is followed by a prenasalized consonant, such as the following words.

labaⁿgal	'bridle'
dawaⁿgel	'small dog'

The hypothesis is that these two words have a penultimate long vowel in their underlying structure which is shortened before a word final heavy syllable. This long vowel appears in the paradigms of the words for 'bridle' and 'dog' when they occur before a final light syllable, as shown in related forms of these nouns.

labaalɛ	'bridles'
rawaaⁿdu	'dog'
dawaaɗi	'dogs'

The long vowel [**aa**] in **labaalɛ** 'bridles' is evidence for vowel shortening in **laba^{n}gal** 'bridle'. The shortening of the penultimate vowel [**a**] in examples like **laba^{n}gal** 'bridle' and **dawa^{n}gel** 'small dog' is conditioned by the CVC shape of the suffixes -**^{n}gal** and -**^{n}gel**. Such shortening can also be seen in the formation of adjectives where a long penultimate vowel occurs before a CV shaped class suffix and a short(ened) penultimate vowel occurs before a CVC class suffix. The relation between vowel length in the penultimate syllable and the weight of the final syllable is shown in the paradigm of the adjectival stem 'white'.

^{n}daneewi	'white' (KI class)	long penultimate vowel + light final syllable
danɛɛjɔ	'white' ('O class)	long penultimate vowel + light final syllable
danɛwal	'white' (NGAL class)	short penultimate vowel + heavy final syllable
danewel	'white' (NGEL class)	short penultimate vowel + heavy final syllable

EXCEPTION 3: There are quite a number of words where the short vowel morpheme -**u**- is followed by a prenasalized consonant (short nasal-plosive sequence).

hakku^{n}dɛ	'in between, middle'
soɓɓu^{n}du	'corner'

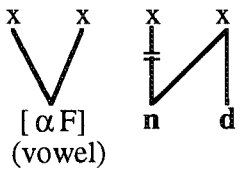
This morpheme -**u**- occurs in infinitives and participles formed with active verb stems. This vowel is often deleted unless its deletion would create ill-formed syllable structures.

EXCEPTION 4: Words in which a long vowel is followed by a long nasal-plosive sequence are also exceptions to the general distribution stated above.

^{n}juun^{n}di	<-	**juut + ^{n}di**	'long'
waan^{n}dɛ	<-	**waat + ndɛ**	'passed' (lit: that has died)

A long vowel followed by a long prenasalized consonant occurs only in productive word derivations in Maasina. The nasal phase in sequence VVN^{n}C is often shortened to VV^{n}C especially in non-productive derivations. The shortening of a long prenasalized consonant after a long vowel is an optional P-rule.

P-rule 4 (optional): prenasalized geminate shortening



This shortening of the **n^{n}d** sequence or any other nasal-voiced plosive sequence after long vowels is not obligatory in Maasina. In fast speech, however, the productive word derivations with a VVN^{n}C sequence often undergo the shortening rule. The prenasalized long consonant in the following words is sometimes (optionally, depending on speech rate) shortened.

wɔɔɗ	+ **ⁿdɛ**	->	**wɔɔnⁿdɛ**	also	**wɔɔⁿdɛ**	'beautiful'
juut	+ **ⁿdi**	->	**juunⁿdi**	also	**juuⁿdi**	'long'
jɔɔɗ	+ **ⁿdɛ**	->	**jɔɔnⁿdɛ**	also	**jɔnⁿdɛ**	'seated position'

The tendency for long nasal-plosive sequences to occur after a short vowel and the tendency for short nasal-plosive sequences to occur after a long vowel suggests compensatory lengthening. Alternating length patterns of either a long vowel or a long nasal period are common especially for words with a nasal-plosive sequence. But there is no free variation between CVNⁿCV and CVVⁿCV. The alternating length patterns are only found when one compares cognate words in different dialects. The nasal period is shortened in a sequence of a long vowel followed by a long prenasalized consonant in Maasina. The vowel is shortened more often in Liptaako.

	Maasina	Liptaako	Gombe	Ringimaaji
'fish'	**liiⁿgu**	**liiⁿgu**	**liŋⁿgu**	**lijiⁿgu**
'ashes'	**ⁿdooⁿdi**	**ⁿdonⁿdi**		
'thing'	**huuⁿdɛ**	**hunⁿdɛ**	**huuⁿdɛ**	**huˀuⁿdɛ, huuⁿdɛ**

The alternation of CVVC with CVCC is not an example of compensatory lengthening (contra Klingenheben 1963:20) but rather the result of a shortening of the CVVC syllable since a V:C: sequence is less preferred in some, and not allowed in other Fulfulde dialects by the well-formedness conditions for syllables. As a result of this, either the consonant or the vowel is shortened in some Nigerian and Cameroonian dialects (McIntosh 1984:15, 29). In Maasina, however, P-rule 4 only applies to non-productive forms. Sequences of a long vowel followed by a long consonant do occur in productive derivations.

Because of these four types of exceptions the distribution of long and short nasal-plosive sequences is not fully complementary. However, the general tendency of prenasalized consonants to occur after long vowels and the tendency of long nasal-plosive sequences to occur after short vowels makes their distribution highly redundant.

2.3.4 AFFRICATES

The affricates are represented as a bundle of features linked to one time slot whereby two feature values [–continuant] and [+continuant] are linked in sequence to this one time slot.

[–continuant] [+continuant]

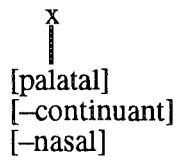
In Fulfulde there are three affricate consonants. These affricate stops all have palatal place features. The symbols [c], [j], and [j̠] stand for the voiceless palatal affricate [cʃ], the voiced palatal affricate [jʒ], and the laryngealized palatal affricate [j̠ʒ̠] respectively. In fact, there are no plain palatal stops in Fulfulde. All palatal stops end in a [+continuant] fricative off-glide.

The affricates can occur as a geminate consonant which is linked to two time slots. A long consonant is phonetically realized by maintaining the closure (of the oral cavity) for a longer period of time. The following figures represent the geminates {**cc**, **jj**, **ɟɟ**} respectively.

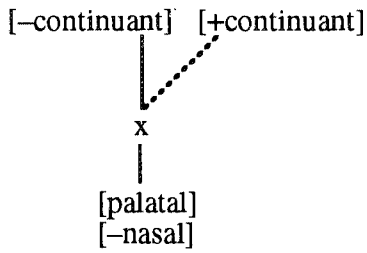
The [–continuant] initial segment of the speech sound is linked to the two time slots when the affricates are geminate. The [+continuant] fricative part occurs as an off-glide of the final time slot linked to the palatal stop. When geminate affricates result form a merger of palatal-alveolar fricative and a glottal stop, the general rule (P-1) produces a palatal stop, which then has to be modified into an affricate (A-5). A-rule 5 describes the insertion of a fricative off-glide because plain palatal oral stops are ill-formed in Fulfulde.

Well-formedness Condition 3

NOT:



A-rule 5: off-glide insertion



The occurrence of such a segment is prevented by the automatic insertion of a [+continuant] segment to the right of this underlying structure as described in A-rule 5. This rule describes the insertion of a fricative off-glide at the end of palatal stops, which is possibly also the historical explication for the affricates. The rule also makes sense because affricates behave phonologically like stops. The affricates [**jj**] and [**c**] in the following words are derived.

wuy	+	ʔɔ	->	**gujjɔ**	'thief'
hɔls	+	ʔɛ	->	**kɔlcɛ**	'hooves'

The segment [**ɟ**] is very rare in the language, no example is found where this segment is clearly derived. The merger of a [**y**] and [**ʔ**], which are adjacent in the underlying structure, results in the geminate consonant [**jj**]. Phonetically this long consonant is realized as [**jjʒ**]. The fricative off-glide is inserted at the end of the geminate palatal stop.

The merger of the segments [**s**] and [**ʔ**], which are adjacent in the underlying structure, follows the same linking and delinking as the derivation of the voiced palatal geminate [**jj**] from [**y+ʔ**]. In addition, a rule describing the change in place features is needed because

without it the merger of [s] and [ʔ] would incorrectly result in a geminate [tt] instead of the correct outcome [cc]. The assumption is that the consonant [s] is *ʃ in the underlying structure. The underlying consonant *ʃ includes palatal place features. The merger of [ʃ] and [ʔ] results in a long palatal affricate [cc] which is pronounced [ccʃ] with a palatal off-glide. The assumption that the fricative [s] underlyingly has palatal features is also useful in the description of the regular consonant alternation s/c and in the description of the syllable final alternation where [s] becomes the palatal approximant [y].

The assumption that the consonant [s] is the palatal fricative *ʃ in the underlying structure makes it necessary to formulate a rule resulting in the correct surface form of [s] when it occurs as a single consonant. This is described in the following structure condition and the related automatic phonological rule.

Well-formedness Condition 4

NOT: x
|
[+continuant]
[-voice]
[palatal]

A-rule 6: s -replacement

*ʃ → s

A phonetic rule changes the underlying palatal feature bundle of *ʃ when it occurs as a single consonant (linked to only one time slot) on the surface. The phonological rule preventing the occurrence of this ill-formed segment inserts the feature bundle alveolar in this context, thus changing *ʃ to [s].

In principle, affricates should be described and derived as stated in this section. These complex autosegmental representations give insight into the exact structure and are consistent with the historical origin of the affricates. Palatal affricates are claimed to originate from a palatal stop to which a fricative off-glide was attached, possibly triggered by the transition to a following (high) vowel. This explains why affricates behave like stops even though their last part is [+continuant]. For reasons of convenience, the orthographic symbols [c], [j], and [j] are used in the phonological representations of the affricate stops.

2.4 THE CONSONANTAL OR VOCALIC STATUS OF TIME SLOTS

The skeletal tier serves as a temporal sequence of anchor points for elements on the autosegmental tiers (Goldsmith 1990:48). For some authors, the skeletal tier has the form of an x-tier which represents a sequence of time slots which are equal in status (Hyman 1985:15). For others, the skeletal tier has the form of a CV-tier in which the consonantal and vocalic status of a time slot is given (Clements and Keyser 1983:62-84). Goldsmith (1990:50) specifies the slots on the skeletal tier as C when it is [–syllabic], as V when it is [+syllabic], and as X when it is not specified. The present study suggests a compromise between the two competing models. The marks C and V are labels for the time slots which are derived from the combination of autosegments that are linked to a particular time slot.

Traditional generative phonology distinguishes consonants from vowels by ascribing the feature [–consonantal] or [+vocalic] or [+syllabic] to vowels. The opposite values of [+consonantal] or [–vocalic] or [–syllabic] are then used to describe a consonant. In addition, consonants and vowels are often distinguished by using different names for their place features, e.g. [palatal] for consonants and [high] for vowels. The place of articulation

is mostly used to describe consonants and the approaching articulator is often used as the name of the feature used for vowels. But this distinction seems somewhat artificial. It obscures the fact that the labial-velar [**w**] and high-back [**u**] have the same place features, the only difference is that [**u**] is higher on the scale of sonority than [**w**]. Many generalizations will be missed in a phonological description using different feature names to distinguish between vowels and consonants. And the use of different features for the description of vowels and consonants makes it impossible to describe phonological assimilation rules like e.g. palatalization as a rule spreading the same feature [+high] from a vowel to an adjacent consonant. In this study there are five segmental tiers (back, round, front, high, low) with place features that are specified for both vowels and consonants. The feature ATR which is only linked to vowels can spread to an adjacent vocalic time-slot without affecting an intervening adjacent consonantal time slot. Glides differ from vowels in their degree of sonority and in ATR harmony. The vowels [**u**] and [**i**] cause the spreading of the feature [+ATR], whereas the glides [**w**] and [**y**] do not. In principle, the features [coronal] and [anterior] could also spread without affecting intervening vowels because these autosegmental features are linked to consonantal time slots only.

The main distinction between consonants and vowels lies in their sequential distribution which is related to their relative sonority: a vowel has to be adjacent to a consonant and a consonant has to be adjacent to a vowel (at least on one side, i.e. either preceding or following). In Fulfulde an utterance is, in principle, an endless repetition of the following obligatory order of consonants and vowels.

Well-formedness Condition 5: [CV(V)(C)]*

This obligatory pattern indicates that the maximal number of vocalic time slots in sequence is two and the maximal number of consonantal time slots in sequence is two. All words, and indeed all utterances, start with one single consonantal time slot. Words can end in any sequence (long vowel, short vowel, single consonant) but not in two consonants.

The structure [CV(V)(C)]* indicates at the same time the possible syllable structure in Fulfulde. The distribution of C and V is linked to the place of speech sounds in the syllable and the possible syllabic structures. This is also the reason why the feature [±syllabic] is often used to distinguish vowels from consonants. In this study, however, the features [syllabic], [vocalic] or [consonantal] are not included as autosegments on either the skeletal or the feature tiers. One reason for not including these features on the segmental tiers is the fact that they differ in nature from the other features: the terms [syllabic], [vocalic] or [consonantal] do not refer to one primary physiological or acoustic feature. And they do not behave like the other features: they do not spreading, i.e. assimilation does not involve the changing of the consonantal or vocalic status of a segment. On the contrary, vowels and consonants have to alternate. Each consonant requires the presence of at least one adjacent vowel and each vowel requires the presence of at least one adjacent consonant.

In this study a cumulative feature of sonority is used instead of the binary features [±syllabic], [±vocalic] or [±sonorant]. The sonority hierarchy is discussed in more detail in section 4.4. The theoretical consequences of the integration of a multi-valued feature describing the sonority of speech sounds into the system of predominantly binary features are not further explored in this study.

The consonantal or vocalic status of a time slot is determined by the autosegments which are linked to that time slot as described by the following two interpretation rules.

x = V
|
[+continuant]
[–nasal]
[+voice]
[–spread]
[–constricted]
[–lateral]
[–vibrant]
[–strident]
(highest degree of sonority)

There is a set of specific feature values that define a vowel. Any difference in the phonological set-up implies that the time slot is identified as a consonant. This also includes any difference in value on the scale of sonority where vowels are defined by the highest degree of sonority. Vowels and consonants also differ in place features.

V	C
|	|
[±front]	[±front]
[±back]	[±back]
[±front]	[±front]
[±high]	[±high]
[±low]	[±low]
[±ATR]	[±coronal]
	[±anterior]

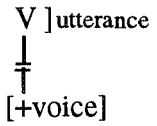
Nasalized, voiceless (or rather whispered), and laryngealized vowels do occur at the phonetic surface level in Fulfulde. The derivation of the consonantal or vocalic status should take place in the underlying structure in order to prevent the interpretation of the time slots linked to (phonetically predictable) voiceless, nasalized or laryngealized vowels as consonants. Some observations on the phonetic realization of the voiceless, laryngealized, nasal, and nasalized segments are presented in the following sections.

2.5 VOICELESS VOWELS AND [h]

Voiceless vowels are pronounced with whispered voice. Vowels can become voiceless or partly voiceless when they occur at the end of an utterance before a pause. Voiceless vowels and final glottality are not distinguished in the orthography. Vowels are pronounced voiceless at the end of sentences that do not end in final glottality. The vowels at the end of the following sentences (ending in adverbs or particular conjugational suffixes) are pronounced voiceless (whispered) before a pause.

ɓɛ ⁿgariḭ	'They have come.'
ɓɛ ⁿjeewti sannẹ̥	'They have enjoyed themselves very much.'
dɛbbɔ ʔɔ lootiimạ̥	'The woman has washed herself.'
mi ʔanⁿdaa mạ̥	'I don't know you.'
naggɛ ʔanniḭ	'Here is a cow.'
hɔnɔ mɔ wiyɛtɛẹ̥	'How is he called?'

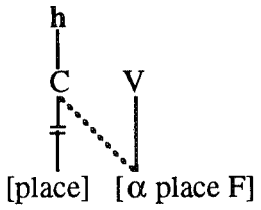
A-rule 7: pre-pausal vowel devoicing



The devoicing of final vowels is a late phonetic rule. The vocalic slot that occurs before a pause will be linked to a [–voice] segment and the [+voice] segment will be delinked. A vowel is [+spread] when it is [–voice].

The consonant [**h**] is also pronounced with whispered voice. It can only occur in syllable initial position. The position of the tongue during the pronunciation of [**h**] is identical to that of the following vowel.

A-rule 8: place assimilation of [**h**] to the following vowel



The consonant [**h**] is represented by different feature bundles depending on its context. The place feature specification of [**h**] is identical to that of the adjacent vowel.

	[h]	hi	he	hɛ	ha	hɔ	ho	hu
continuant	+	++	++	++	++	++	++	++
nasal	–	––	––	––	––	––	––	––
voice	–	–+	–+	–+	–+	–+	–+	–+
spread	+	+–	+–	+–	+–	+–	+–	+–
constricted	–	––	––	––	––	––	––	––
lateral	–	––	––	––	––	––	––	––
vibrant	–	––	––	––	––	––	––	––
strident	–	––	––	––	––	––	––	––
high	–	++	––	––	––	––	––	++
back	–	––	––	––	––	++	++	++
front	–	++	++	++	––	––	––	––
round	–	––	––	––	––	++	++	++
low	+	––	––	––	++	––	––	––
(ATR		+	+	–	–	–	+	–)
(coronal	–	–	–	–	–	–	–	–)
(anterior	–	–	–	–	–	–	–	–)

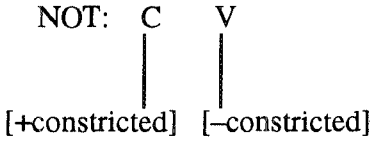
When the sound of the segment [**h**] is isolated on a tape (with a gate) the acoustic effect is identical with that of a voiceless vowel. The quality of the following vowel is heard as whispered during the pronunciation of the [**h**].

2.6 LARYNGEALIZATION OR CREAKY VOICE

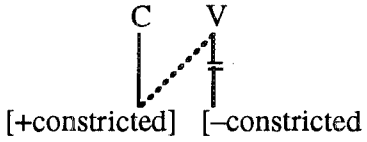
2.6.1 LARYNGEALIZED VOWELS AND [ʔ]

Vowels are automatically laryngealized when they occur adjacent to the segments [**ɓ**], [**ɗ**], [**j̊**], and [**ʔ**]. These consonants are all linked to the feature [+constricted]. At the phonetic surface level, laryngealized vowels do occur in Fulfulde. Laryngealization of vowels is not indicated in the orthography. In this section laryngealization is marked with a tilde [̰] under the laryngealized vowels to show that their distribution follows the rule given. Laryngealization spreads form a [+constricted] consonant to preceding and following vowels.

Well-formedness Condition 6a

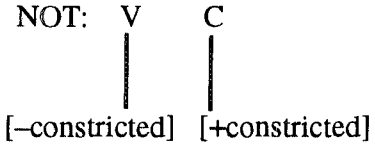


A-rule 9a: vowel laryngealization

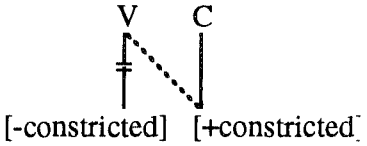


Well-formedness Condition 6a and A-rule 9a are the mirror image of 6b and 9b.

Well-formedness Condition 6b



A-rule 9b: vowel laryngealizatior



The following examples are given in a narrow phonetic transcription.

ɓɔ̰cɔ̰ɔ̰ɗɛ̰	'eggs'
ɔ̰mɔ fṵṵj̊ḭ	'he is lazy'
joomira̰a̰ɗɔ̰	'master'
ka̰a̰j̊ɛ̰	'stones, rocks'
a̰a̰ra̰a̰ɓɛ̰	'Arabs'

The feature [+constricted] describes the state where the vocal cords are tightened and only the ligamental part of the vocal cords is vibrating during the pronunciation of the consonants [**ɓ**], [**ɗ**], and [**j̊**], this is also called creaky voice. The vocal cords are fully tightened for the pronunciation of the glottal stop [**ʔ**]. The release of the tightened vocal cords produces the sound that is characteristic for the glottal stop. The release is accompanied by creaky voice in Fulfulde. The tightening of the vocal cords during the pronunciation of the [+constricted] consonants spreads to the adjacent vowels resulting in laryngealized vowels, i.e. vowels pronounced with a creaky voice.

A glottal stop can occur word initially, intervocalically, and utterance finally. Glottal stops are pronounced when a word initial glottal stop follows another vowel final word in an utterance. An intervocalic glottal stop often shows (free?) variation with [**h**]. The glottal stop alternates with [**y**] in the environment of the vowel [**i**].

beʔi, behi, bey	'goats'
gaʔi, gahi, gay	'bulls'
wiʔi, wihi, wii	'has said'
waʔi, wayi	'resembles'

The glottal stop is not always realized utterance initially, its underlying presence can be noted by the creaky voice appearing on the vowel that precedes the glottal stop:

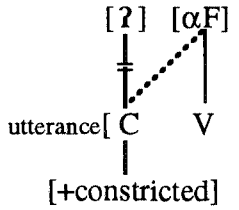
sawrṵ	'staff, stick'
jawɔ̰ʔ also **jawɔ̰**	'bracelet'
ʔana welḭ	'it is nice'
yɔ ʔalla wuurnu mɔ̰	'may God make him/her live'

In utterance initial position, a glottal stop is generally realized only by the creaky voice onset of the initial vowel:

a̰ar̰a̰ɓɛ̰	'Arabs'
ɔ̰mɔ waawi	'can he?'

The feature bundles of the glottal stop in utterance initial position are identical to the features of a laryngealized vowel. Isolated (on tape with a gate) the initial part of that word sounds exactly like a vowel with creaky voice, i.e. a laryngealized vowel. The position of the tongue during the pronunciation of [ʔ] is identical with that of the following vowel. Only the feature [+constricted] remains as a trace of the underlying glottal stop, sometimes realized only as the initial part of the utterance initial vowel.

P-rule 10: utterance initial glottal stop deletion



If a word beginning with a glottal stop is put in a position where it follows a vowel final word, then the initial consonant is pronounced as a [–continuant] glottal stop again.

2.6.2 FINAL GLOTTALITY

Arnott (1970a:65) describes final glottality as a glottal feature which is only realized at the end of sentences before a pause when the pre-pausal syllable is not marked by rising intonation. The glottal feature follows certain word categories and certain verbal

complexes. The word categories marked by final glottality are nominals, i.e. words ending in a noun class suffix and the independent pronouns (Arnott 1970a:388). The verbal complexes marked by final glottality are the subjunctive (also used in the progressive) and the relative verb forms (also used to form the stative) (Arnott 1970a:231). The distribution of the final glottality in the Fulfulde dialect of Gombe as described by Arnott is almost identical to its distribution in the Fulfulde of Maasina. One of the differences is that the demonstratives in Gombe do not have final glottality because their final morpheme is not the class suffix. Forms of the demonstratives ending in the class suffix do occur in Maasinankoore where they are characterized by final glottality. Furthermore, there are a number of adverbials like **ʔannii**ʔ 'here is' that are marked by final glottality in Maasina which do not occur in the Gombe dialect. Finally, the imperative is marked by final glottality in Maasina but not in Gombe (Arnott 1970a:252).

The hypothesis is that the final glottality is a morpheme [ʔ] that carries meaning. Its meaning is similar to the meaning of contexts in which an exclamation mark is used in the punctuation of a text. The final glottality thus indicates that something in the sentence is expressive. The following sentences with final glottality can be pronounced expressively, or they contain a focused constituent. The last column lists the category of the sentence final word that requires the occurrence of final glottality.

sanaa mɔ waraʔ	'He has to come!'	Subjunctive
nay ʔanniiʔ	'Here are cows!'	Adverbial predicate **ʔannii**ʔ
yɔ mɔ duwɛnɛʔ	'May he bless you!'	Exhortative
lɛɛtɛrɛ mɔ winⁿdannɔɔʔ	'It's a letter that he wrote!'	Relative
yinaʔ	'Swim!'	Imperative

The relative verb forms indicate that the initial noun phrase in the sentence is in focus. The meaning which is related to the use of the exclamation mark, which indicates attention or affirms that something is in focus, can be found in the context of the relative verb from where final glottality occurs. By syntactic extension, the stative and progressive forms which combine the durative with the subjunctive or with the relative verb forms are also marked by final glottality even though they are not explicitly expressive predicates.

ʔɔmɔ gɔllaʔ	'He works.'	Subjunctive
ʔɔmɔ nii gɔllaʔ	'He is just (busy) working.'	Subjunctive
ʔana heewiʔ	'There are many, it's much.'	Relative
ʔɔmɔ waawiʔ	'He can.'	Relative

The deictic function of the class marker in demonstratives has a meaning that is similar to that expressed by an exclamation mark. It draws attention. However, the near demonstrative (concord + **ga**) is not characterized by final glottality.

	huuⁿdɛ ⁿdɛɛʔ	'That thing!'	Class suffix
	huuⁿdɛ ⁿdeetoʔ	'That thing over there!'	Adverb **to**ʔ
but:	**huuⁿdɛ ⁿdɛɛga**	'That thing here.'	

The class marker in other nominal and pronominal forms has also a deictic function. By extension all nouns formed with the class marker, i.e. all nominals, are characterized by final glottality. This could also be an indication that the class suffixes are historically derived from forms with a deictic function.

ɲaamⁿduʔ	'food'	Class suffix
miildɛʔ	'to think'	Class suffix
sawruʔ	'stick, staff'	Class suffix
ɓeemriʔ	'drying up of flood'	Class suffix

Final glottality seems to interact with intonation patterns even though it has a segmental form [ʔ]. In Maasina, final glottality is deleted in all questions: both in yes-no questions with a rising intonation and in question-word-questions that do not have rising intonation. And questions are precisely the type of sentences in which an exclamation mark would not be expected. The absence of final glottality in the following questions overrules the fact that the relative verb form and the nominal infinitive require final glottality.

hɔnɔ foti ?	'How much?'	Relative
ʔɔmɔ waawi ?	'Can he?'	Relative
ŋardʃudɛ ?	'To be beautiful?'	Class suffix

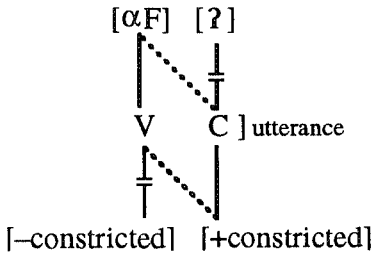
The last utterance was recorded on tape with a question intonation. I was asking for some words to be pronounced in isolation. I gave the French translation equivalent 'être beau' hoping to get the infinitive **woodʃudɛ** 'to be beautiful, to be good'. The consultant remembered that we discussed the word but was always very strict in giving correct translations. The hesitation about whether this was the word I wanted to ask explains the question intonation. This question intonation explains the absence of final glottality in this utterance.

In the above examples the final glottality is represented by a glottal stop. This is actually not always the phonetic realization of the final glottality in the Fulfulde of Maasina. Final glottality is often phonetically realized as the laryngealization of the final vowel.

lɛɛtɛrɛ mɔ winⁿdannɔ̰ɔ̰(ʔ)	'It's a letter that he wrote!'	Relative
ʔɔmɔ gɔlla̰(ʔ)	'He's working.'	Subjunctive
ɲaamⁿdṵ(ʔ)	'Food.'	Class suffix

A separate rule should describe the optional omission of the glottal stop in this context.

P-rule 11 (optional): utterance final glottal stop deletion



This rule says that sometimes the glottal stop is not pronounced utterance finally. The underlying glottal stop can be deleted but it causes the laryngealization of the preceding vowel. The laryngealization of the vowel preceding the glottal stop can be described by the same rule as the rule which states that all vowels that are adjacent to [+constricted] consonants are laryngealized.

The effect of final glottality on a preceding consonant is difficult to perceive. When the word **laba^{n}gal** 'bridle' is pronounced sentence finally, the two final segments **-al** were both perceived with creaky voice. More often, the final glottality seemed to leave no trace when an utterance was consonant final. The phonetic effect of final glottality on consonant final utterances needs to be investigated to confirm the impression that final sonorant consonants are laryngealized when followed by final glottality.

2.6.3 LARYNGEALIZED CONSONANTS

In this study the consonants [**ɓ**], [**ɗ**], and [**ʄ**] are described as laryngealized, sharing the feature [+constricted] with the glottal stop [ʔ]. This statement differs from the description of these consonants by many authors. There does not appear to be any consensus on the phonetic nature of these consonants. A summary of the opinions in the literature about the consonants {**ɓ**, **ɗ**, **ʄ**} and the confusing terminology is given below.

glottalized:	Arnott (1970a:41): {**ɓ**, **ɗ**, and **ʄ**}
implosive:	Mukarovsky (1963:47) Arnott (1970a:385): {only [**ɓ**] and [**ɗ**]} Labatut (1973:50) Sylla (1982:25) Paradis (1986:171)
voiceless implosive:	Labouret (1952:8) Lex (1987)
ejective:	Arnott (1970a:385): {only [**ʄ**] }
preglottalized:	Klingenheben (1963:1-2) Ladefoged (1964:17) (with doubt) Swift, Tambadu, Imhoff (1965:17) Noye (1974:8) Bidaud & Prost (1982:12)
laryngealized:	Ladefoged (1964:17) Noye (1989:vii)

The many different terms indicate that the issue is a problematic one. Most authors consider the use of these terms to be sufficient explication for the phonetic nature of the sounds and do not go into the matter explicitly. Only Ladefoged and Lex accompany their statements with more elaborate explanations of the sounds. After a summary of the opinions of the

other authors, I will concentrate on the views of Ladefoged and Lex. The discussion will add some arguments in favour of Lagefoged's description of the consonants {ɓ, ɗ, ʄ} as laryngealized consonants.

Arnott (1970a:41) arranges [ɓ], [ɗ], and [ʄ] as glottalized segments in his phoneme chart. In his appendix (Arnott 1970a:385) he adds further details about some consonants, stating that [ɓ] and [ɗ] are implosive and [ʄ] is ejective. Arnott mentions creaky voice (=laryngealized) as an effect of a glottal stop on adjacent vowels. He does not elaborate on the phonetic description of these terms.

Labouret (1952:8) is more explicit. He describes {ɓ, ɗ, ʄ} as voiceless implosives ("occlusives sourdes avec implosion"). This in contrast to other authors who usually see these consonants as voiced.

Klingenheben's term "stimmhaften Verschlusslaute mit Kehlverschluss" is interpreted by Mukarovsky (1963:47) as implosive. I cannot conclude this from Klingenheben's own description. Klingenheben (1927:86) says that these sounds ("Kehlverschlusslaute") are explosive or at least start as an "explosive" like the affricate [ɗy] (= [ʄ]). Whatever Klingenheben's thoughts are about {ɓ, ɗ, ʄ}, he definitely does not describe them as implosive. Klingenheben (1963:1-2) gives the term laryngeal consonants as an equivalent of "Kehlverschluss" in his later work. Klingenheben describes {ɓ, ɗ, ʄ} as the oral consonants {b, d, y} pronounced as a glide or transition to the next vowel between a glottal stop and a vowel where [ʔ] fuses with the oral plosive. This description seems to indicate that Klingenheben perhaps thought that {ɓ, ɗ, ʄ} are preglottalized. He uses the term laryngeal as a place feature.

Noye (1974:8) writes in his course book that {ɓ, ɗ, ʄ} are called implosives but "you have to hear them to make them correctly". He states that they resemble a glottal stop preceding the consonants {b, d, y} respectively. In his dictionary (1989:viii) {ɓ, ɗ, ʄ} are listed without comment as laryngealized. Perhaps he changed his opinion from preglottalized to laryngealized.

Lex and Ladefoged provide more extensive studies on the "glottal" consonants. Ladefoged (1964:16-17) uses the symbols [ˀb], [ˀd], and [ˀj] for the consonants {ɓ, ɗ, ʄ} in Fulfulde. Ladefoged says he has not been able to distinguish between voiced consonants with accompanying glottal stop and similar consonants marked by laryngealization, therefore he marks both by a prefixed glottal stop [ʔ].

Laryngealized voicing is described as a state of the glottis with a great deal of tension in the intrinsic laryngeal musculature, so that the vocal cords no longer vibrate as a whole. The ligamental and arytenoid parts of the vocal cords vibrate separately, sometimes almost 180° out of phase with one another, one end opening as the other end is closing. This produces an apparent increase, often an approximate doubling, of the rate of occurrence of glottal pulses.

Ladefoged has doubts about the categorization of all the "laryngealized" consonants in Seereer, Wolof, and four Fulfulde dialects. In these languages laryngealization typically consists of the quickest possible change from normal voicing to a glottal stop, followed by a rapid change back to normal voicing again; the glottal stop usually occurred a few milliseconds before the consonant closure was made.

Ladefoged mentions that the features implosive and laryngealized are often linked. Laryngealized voicing often occurs during an implosive consonant. And the laryngealized

sounds may be incidentally implosive on some occasions, but they are always distinguished from their voiced counterparts by being laryngealized.

Lex (1987) concluded that {ɓ, ɗ, ʄ} are phonetically injective on the basis of a phonetic study of these consonants in the Fulfulde of Fulaadu (Senegal). Injective consonants are consonants characterized by an ingressive air stream caused by a closure in the oral cavity and lowering of the larynx resulting in a lower pressure in the mouth that causes air to stream into the mouth when the oral closure is released. This is usually described with the term "implosive"; a term she wants to avoid because apparently in French the term "implosée" has the meaning "unreleased".

Measuring the direction of the air stream coming in or going out of the mouth with a kymograph ("phneumotachographe"), she clearly shows that word initially the glottal consonants are accompanied by an ingressive air stream that occurs shortly after the plosive release. This ingressive air stream is however absent or very small when the glottal consonants occur intervocalically or word finally. In Fulaadu glottal consonants can also occur word finally, this is not possible in Maasina.

Lex uses pictures made with an oscillogram, showing the fundamental frequency of the utterances, to indicate where the ingressive air stream and the activity of the vocal cords synchronize with the pronunciation of the glottal consonants.

Measuring the activity of the vocal cords via two electrodes that are attached to the outside of the throat near the larynx with a laryngograph, she tries to show that glottal consonants show a particular pattern of voicing (Lex 1987:52). The following figure shows the voicing of glottal consonants according to Lex, using her terminology.

	initial single C	intervocalic single C	intervocalic geminate CC
voicing	no	yes	no
voiced onset time	positive	large/negative	small/negative
ingressive air stream	yes	no/little	no/little

A positive voiced onset time means that the type of voicing of a particular consonant is expanded to the initial part of the following segment, in this case a vowel. In the case of a voiceless glottal consonant this is realized as a kind of aspiration following the glottal consonant's release. A negative voiced onset time means that the voicing of the following vowel expands to the final part of the glottal consonant. A small last part of geminate glottal consonants is voiced and this geminate is adjacent to a vowel. The intervocalic glottal consonants are voiced entirely. This is due to the large expansion of the voicing of the adjacent vowels (Lex 1987:39). The conclusion of Lex is that the consonants [ɓ], [ɗ], [ʄ], and [g'] are voiceless injectives which she symbolizes as [p<], [t<], [c<], [k<] respectively. (The consonant [g'] is rare in Fulaadu, it only occurs in some Arabic loan-words, it is not attested in Maasina)

The demonstration that word initial glottal consonants are accompanied by ingressive air stream after the release of the closure is convincing and very interesting. But it seems that Lex (1987:54) rejects the possibility that the glottal consonants are laryngealized too quickly. In fact her examples of intervocalic geminate consonants (Lex 1987:48) that are accompanied by vocal cords placed against each other ("cordes vocales accollées") point in the direction of laryngealization.

The state of the glottis for the production of voiceless sounds is a state of the glottis where the vocal cords are separated from each other so that air can pass freely. For voiced sounds the glottis is in a state where the vocal cords are placed relaxed next to each other so that the passing air causes a vibration with regular intervals. During the production of laryngealized sounds, i.e. sounds produced with a creaky voice, the vocal cords are tightened and placed close next to each other so that the passing air will cause only a very irregular vibration on a small part of the vocal cords. The frequency of laryngealized sounds is very irregular and the sound will look more like a voiceless sound than like a voiced sound on an oscillogram. This could explain why Lex interpreted the glottal consonants as basically voiceless.

She interprets the pictures given by the laryngograph only as voiced or voiceless. She fails to describe what the picture of the laryngograph would look like if a sound would be laryngealized. The frequency pattern that she presents as typical for laryngealized consonants (Lex 1987:54) is much too simple and probably wrong. This is why I doubt her hypothesis concerning the voicing of the consonants {**ɓ, ɗ, ʄ**}. She does demonstrate clearly an ingressive air-stream when {**ɓ, ɗ, ʄ**} occur word initially (actually utterance initially because the words are pronounced in isolation). My conclusion from her phonetic study is that laryngealized consonants can be pronounced with implosion utterance initially.

My hypothesis that the consonants {**ɓ, ɗ, ʄ**} are laryngealized is largely based on acoustic observations. The sounds were studied in isolation with a gate and in context while the frequency was shown on an oscilloscope. Vowels adjacent to the consonants [**ɓ**], [**ɗ**], [**ʄ**], and also [**ʔ**] are clearly laryngealized in voicing. The spreading of a feature laryngealized from the laryngealized consonants to the adjacent vowels is then a plausible explanation.

The phonetic study of Lex (1987) shows a clear ingressive air stream near the mouth in word initial position. Laryngealized consonants can also be realized accompanied by a lowering of the larynx and implosion (Ladefoged 1964). A decisive phonetic experiment would be the measuring of the air pressure above and below the glottis and the recording of images of the vocal cords during the pronunciation of the sounds {**ɓ, ɗ, ʄ**} compared with {**b, d, j**}. None of the consultants were willing to undergo such a test. Until such an experiment is carried out, the assumption is that the consonants {**ɓ, ɗ, ʄ**} are laryngealized consonants that can become implosive in initial position. This conclusion is based on acoustic observations and on the behaviour of laryngeal consonants: they cause laryngeal voicing of adjacent vowels.

2.7 NASALIZED VOWELS

Nasalized vowels are the result of the occurrence of an underlying sequence of a short vowel followed by a nasal preceding a word boundary or preceding [**s**]. The nasalization of vowels is an optional (phonological) P-rule. The word final nasal consonant which conditions the nasalization is lost on the surface in most cases. A nasal consonant assimilates in place to the initial consonant of the next word when the nasal in word final position is realized. Utterance finally the nasal can become velar [**ŋ**]. Many words are consistently pronounced without the final nasal and with a nasal vowel.

		orthography
ʔabbã	'my father'	**abbam**
hɔkkã	'give me'	**hokkam**
kɛɛŋẽ	'yesterday'	**keenyen**
kɔɔtẽ	'let's go home'	**kooten**
sɛwrɛ wɔnã burgu	'the herd will be in the inner Niger Delta'	**sewre wonan burgu**

The next words contain a nasalized vowel on the phonetic surface where a VN sequence occurs before [s] in the underlying structure.

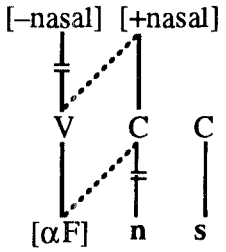
		orthography
dõsɔŋkɛ	'hunter'	**donsonke**
yãsaadɛ	'to talk, to discuss'	**yansaade**

In some environments the word final nasal appears on the surface, especially when the next word starts with a nasal. This is shown in the following two examples.

ɛ̰ɓɛ̰ ʔɛ̰ jã	'They are with peace.'
ɛ̰ɓɛ̰ ʔɛ̰ jam nii	'They are with peace only.'

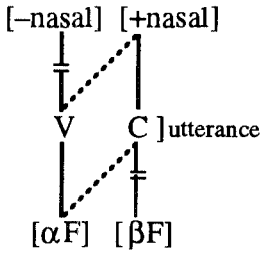
The assumption is that a nasal is present in the underlying structure wherever a nasalized vowel occurs. Two segment structure conditions describe the nasalization of the vowel and the deletion of the nasal stop, one in word final position where this process is frequent but optional. The nasalization of the vowel and the deletion of the alveolar nasal is obligatory before [s].

P-rule 12: vowel nasalization of VN before s



P-rule 12 states that an alveolar nasal stop is not allowed before [s]. The underlying vowel nasal sequences becomes a nasalized vowel.

P-rule 13 (optional): word final vowel nasalization of VN



P-rule 13 states that sometimes a word final vowel nasal sequence becomes a nasalized vowel. There are certain contexts in which a VN sequence is allowed word finally. Consider the following sentences in the orthography of Mali.

So on ngon ton golle, neldaa kam.
if you pl. have there work, send-CIR-SUB-you me.'
'If you have the work there, you should send it to me.'

Hebbin loonde ndee.
fill-IMP water pot that
'Fill that water pot!'

The above sentences were taken down in phonetic script. They were pronounced several times. The difference could perhaps be explained by the speed: more nasalization and more dropping of word final nasals in faster speech. The following strings show the phonetic transcriptions of the above sentences.

sɔ ʔɔŋ ⁿgɔ̃n tɔ̃ŋ ⁿgɔllɛ, nɛldaa kãʔ
sɔ ʔɔŋ ⁿgɔ̃ tɔ̃ gɔllɛ, nɛldaa kãʔ

hebbin lɔɔⁿdɛ ⁿdɛ̣ɛ̣
hebbĩ lɔɔⁿdɛ ⁿdɛ̣ɛ̣

The occurrence of a word final nasal seems restricted to slow and careful speech. Words pronounced in isolation are often pronounced with the final nasal. The word final nasal is also pronounced when a word is stressed, e.g. when it is important in a story. A number of words with final nasals were pronounced within a one page story that was once read very slowly and once in normal speed. The following two phonetic transcriptions of these words gives a comparison of nasalization of word final VN sequences in slow and fast speech.

underlying form		slow speech	fast speech
yaran	'usually drinks'	**yarã**	**yarã**
kɔsam	'milk'	**kɔsam**	**kɔsã**
tan	'only'	**tã**	**tã**
nay mum	'his cows'	**mum**	**mũ**
ɲanⁿdɛ ⁿdɛn	'one day'	**ⁿdɛn**	**ⁿdɛ̃**
nɔn ⁿdɛ	'that is how'	**nɔn**	**nɔn**
sɛɛɗa tan	'only a little'	**tã**	**tã**
ⁿdiyam	'water'	**ⁿdiyam**	**ⁿdiyã**
sabi hoɗum	'why'	**hoɗũ**	**hoɗũ**
huurtanaadɛ kam	'to marry me'	**kam**	**kam**
mutan	'will go down'	**mutã**	**mutã**
hakkilɛ mum	'her mind'	**mũ**	**mũ**
ɗum waawaa	'it's not possible'	**ɗũ**	**ɗũ**
tan	'just'	**ta**	**tã**

underlying form		slow speech	fast speech
lan^{n}dii ɗum	'asked him'	**ɗũ**	**ɗũ**
huurtanaadɛ ɗum	'to marry him'	**ɗũ**	**ɗũ**
ɓiyum	'his child'	**ɓiyũ**	**ɓiyũ**
lan^{n}dii ɗum	'asked her'	**ɗũ**	**ɗũ**
mɔɔmɔɔ ɗum	'touch him'	**ɗũ**	**ɗũ**
^{n}dɛɛn	'then'	**^{n}dɛɛn**	**^{n}dɛɛn**

The final nasal is dropped more often in fast speech than in slow speech, leaving a nasalized vowel. Maybe the word **nɔn** 'how' does not drop its final nasal because it is followed by the word **^{n}dɛ** 'it' starting with a nasal segment. Maybe the word **kam** 'me' does not drop the final nasal because it receives stress. Also the bilabial [**m**] seems more resistant to deletion than the alveolar nasal [**n**]. In slow speech the distribution is less clear, of course there is more opportunity to stress words in slow speech. The final vowel-nasal sequence in the word **^{n}dɛɛn** 'then' does not become a nasalized vowel because nasalization of long vowels does not occur.

The impression is that the final time slot is not deleted and that the syllable containing a nasal vowel behaves like a heavy syllable. There are only a few instances where the weight of the last syllable can be shown. One of these is in the context of deriving the correct length of the vowel in the penultimate syllable of adjectives. In the following examples the length of the vowel in the penultimate syllable depends on the weight of the last syllable which contains the class suffix. A long vowel is shortened in the penultimate syllable of nouns before a heavy syllable. The following paradigm of the adjective 'white' shows that the syllable weight of the class suffixes **-wal** and **-jã** have the same effect on the length of the penultimate vowel [**ɛ**].

danɛjã	**danɛɛjã**	'white ('DAM class)'
danɛwal	**danɛɛwal**	'white (NGAL class)'

The rule shortening the penultimate vowel before a heavy syllable is optional, but the variation in final vowel length of the word ending in the class suffix **-jam** or **-jã** is identical to the variation found in the word ending in the class suffix **-wal**. This adjective does not show any kind of variation. If the last syllable contains the class marker **-jɔ**, then the form is always **danɛɛjɔ** 'white (person)'. The penultimate vowel in the word **danɛɛjɔ** 'white (person)' is not shortened because the last syllable has the form CV and is therefore a light syllable. The weight of the syllables is also an argument to assume that a nasal consonant is present in the underlying structure of nasalized vowels.

A remark has to be made about the co-occurrence of final glottality and nasalized vowels. The impression is that nasal vowels that occur before a pause where final glottality can be expected are both nasalized and laryngealized. This assumption is based on acoustic impressions while listening to those sounds in isolation and in context and while watching their frequency on the oscilloscope.

The precise phonetic nature of laryngeal voicing and its co-occurrence with nasalization in Fulfulde needs to be confirmed by more detailed phonetic experiments which are outside

the scope of the present study. Similarly the assumption that all voiced consonants followed by final glottality are realized with laryngeal voicing will need further verification.

2.8 LABIAL APPROXIMANTS [ɥ], [β], AND [w]

Studies by Labatut (1973) and by Mohamadou (1985) revealed the existence of a second labial approximant [β] next to [w] in some varieties of Fulfulde. Labatut describes the Fulfulde of the Dageeja spoken in Northern Cameroon. Mohamadou's description is based on the Fulfulde spoken in the eastern parts of Aadamaawa, called Fommbinaare or Fuunaangeere, of which southern Aadamaawa is a subgroup. Field work on Ringimaaji (Mbororo) in North West Cameroon showed the existence of an element that will be described as [β]. Paradis (1986) describes a segment [ɥ] in the Fulfulde of Mauritania. Field work in Maasina (Mali) showed the existence of a segment that will be described as [ɥ]. In this section the phonetic realization of these segments is described together with a sketch of their distribution in the different dialects. The genesis of the different distributional patterns of [β], [ɥ], and [w] is discussed in more detail in the section on the initial consonant alternation (3.1.6).

The exact pronunciation of both [ɥ] and [β] differs slightly from the standard interpretation of these symbols. Labatut (1973:49) describes the segment as a bilabial fricative [β] in the Fulfulde of the Dageeja. Later he stated that the friction during the pronunciation of [β] is very weak. In the orthography of the Fulfulde of the Dageeja he uses the letter "v". Mohamadou (1985:40) also uses the letter "v" which is pronounced as a sonorant labiodental fricative with a very loose or lax articulation. Paradis (1986:178) is not explicit about the phonetic realization, both [ɥ] and [w] are called rounded glides. The glide [ɥ] is said to be the consonantal equivalent of [ü]. Ladefoged (1964:25) states that Seereer, Dyola, and the Fula of Mopti have neither [v] nor [w] but a bilabial or labiodental approximant that he symbolizes with [ʋ]. This sound differs from [v] mainly by the lack of friction, and from [w] by the absence of the raising of the back of the tongue. Ladefoged states in his appendix B (1964:45) that the Fulfulde spoken in Mopti has [ʋ] for [w] in some contexts.

This study uses the symbol [ɥ] for the unrounded bilabial/palatal approximant attested in Maasina. The [ɥ] is taken to symbolize a [–round] [+front] [+anterior] labial approximant. There is no rounding, the lips form the sound [ɥ] while being spread with a tongue position that is equal to that of front vowels. There seems to be no available symbol for an unrounded labial approximant that has the tongue in a palatal position (which also should explain why [ɥ] sometimes becomes [j] when it becomes [–continuant]). The rounding of [ɥ] described by Paradis (1986:180) is rejected. The hypothesis is that the segment [ɥ] in Pulaar has a realization not with rounding but with a spread articulation of the lips like in Maasina. The segment [ɥ] in Maasina and Pulaar differs form the segment [β] in Ringimaaji and Aadamaawa in their phonetic nature and in their phonological distribution.

The segment [β] attested in Ringimaaji is not pronounced as [ɥ] or [w]. There is some consensus on the pronunciation of [β] and "v". There is very little friction in the pronunciation of [β] and "v", this is also stated by both Labatut and Mohamadou. The description of the exact place features of "v" or [β] also varies. Mohamadou says the segment "v" is labiodental, Labatut calls [β] bilabial. There is only agreement on the fact that "v" or [β] is not labiovelar. The confusion between bilabial and labiodental might be caused by the

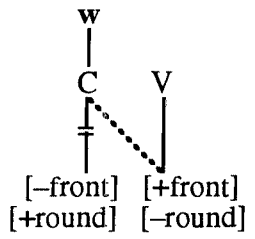
typical pronunciation of this segment which I witnessed in Ringimaaji. The lower lip is moved inwards into the mouth in the direction of the teeth. This gives the optional impression of a labiodental. But the lower lip never reaches the teeth. The air passing through the opening between the two lips causes a very light friction. In this study the symbol [β] is used for the segment attested in Ringimaaji. [β] is taken to symbolize a [-round] labial approximant with a very light friction. The hypothesis about the exact place of articulation of the segment [β] needs further study. Perhaps the filming of the pronunciation can provide slow-motion pictures that will show this more clearly. The hypothesis is that the phonetic nature of Mohamadou's [v] and Labatut's [β] are more similar than the terms labiodental and bilabial suggest. From now on [β] will refer to both [v] and [β].

The question is whether the segments [ɥ] and [β] are simply different pronunciations of the same underlying segment in the different dialects or not. The distribution of these segments differs. In Maasina the segment [ɥ] is in complementary distribution with [w]. The segment [ɥ] occurs only syllable initially before front vowels. The following examples show the distribution of [ɥ] and [w] in Maasina.

u:	**wurɔ / gurɛ**		'village'
ɔ:	**wɔjɛrɛ / bɔjɛ**		'hare'
a:	**waa^{n}du / baaɗi**		'monkey'
ɛ:		**ɥɛlaa**	'isn't nice'
e:		**ɥee^{n}du / beeli**	'pond, lake'
i:		**ɥirɔ / birɛ**	'rib'

This complementary distribution can be explained by a phonological rule describing the assimilation of labial glides to front vowels.

A-rule 14: place assimilation of [w] to [ɥ]



A labiovelar [w] that becomes [+front, -round] before front vowels will become a [ɥ]. The same distribution of [ɥ] and [w] occurs also stem finally in Maasina.

Maasina

yɛɛɥ-ɛɛdɛ	'to miss'	**yɛɛw-aama**	'has missed'
deɥ-el	'little girl'	**^{n}dew-oy**	'little girls'
jaɥ-el	'little bracelet'	**jaw-ɔ**	'bracelet'
mi taɥ-ii	'I have found'	**taw-dɛ**	'to find'
laaɥ-i	'roads'	**laaw-ol**	'road'

In Maasina [w] and [ɥ] are in complementary distribution: [w] occurs before [–front] vowels and [ɥ] occurs before [+front] vowels. Paradis (1986:178) observed the same complementary distribution of [ɥ] and [w] in Pulaar (Mauritania). Paradis postulates the glide [ɥ] in the underlying structure but it can only be realized as [ɥ] before front vowels. The following examples show the distribution of [ɥ] and [w] in Pulaar.

Pulaar			
u:	**wuurdɛ**		'to live'
o:	**wowru**		'mortar'
ɔ:	**wɔjɛrɛ**		'hare'
a:	**waa^{n}du**		'monkey'
ɛ:		**ɥɛccɔ**	'side'
e:		**ɥee^{n}du**	'pond, lake'
i:		**ɥin^{n}dudɛ**	'to write'

The consonant [ɥ] can occur before the vowels {ɛ, e, i} and the consonant [w] occurs before the vowels {a, ɔ, o, u}. Paradis states that the consonant [ɥ] that marks the inchoative (called the "associative extension" in this study) becomes [j] when it is strengthened, i.e. when it becomes [–continuant].

The distribution of [β] and [w] in Dageeja, Aadamaawa, and Ringimaaji is different from the distribution of [ɥ] and [w] in Pulaar and Maasina. In Ringimaaji the segment [β] can be found to distinguish meaning in minimal pairs. There is however a restriction on the segment [w] which can only occur before [–front] vowels. In other words the segment [w] cannot occur before [+front] vowels. This is similar to the behaviour of the segment [w] in Maasina. The following words show distribution of [β] and [w] in Dageeja*.

Dageeja				
u:	**wurɔ**	'camp, village'	**βurti**	'turned up'
o:	**woni**	'is'	**βolβi**	'has said'
ɔ:	**wodaaβe**	'nomadic Fulbe'	**βojere**	'hare'
a:	**waalde**	'age group'	**βaare**	'beard'
ɛ:			**asaβeere**	'Saturday'
e:			**βeeti**	'in the morning'
i:			**βicco**	'tale'

In the Fulfulde of the Dageeja [β] can occur before all vowels, [w] only occurs before the vowels {a, ɔ, o, u}. The distribution of [β] and [w] in (southern) Aadamaawa shows the same pattern as in Dageeja.

* The orthography used in the examples does not distinguish the vowel [ɛ] and [ɔ]. The vowel quality is predictable here from adjacent vowels.

Aadamaawa

u:	**wula**	'be hot'	**βula**	'abjure'
ɔ:	**wooda**	'have'	**βooda**	'moo, low'
a:	**wama**	'dance'	**βama**	'plait (mat or rope)'
ɛ:			**βela**	'be nice'
i:			**βila**	'destroy'

The consonant [β] can occur before all vowels, the consonant [w] only occurs before the vowels {a, o, u}. And again, the same distribution of [β] and [w] is attested in Ringimaaji. In Ringimaaji [β] can occur in both syllable initial and syllable final position and [β] can occur before all vowels. The distribution of [w] is restricted, [w] does not occur before front vowels. The distribution of [β] and [w] in Ringimaaji is similar to the one in the Aadamaawa dialects.

Ringimaaji

u:	**wuuwugɔ**	'to bend'	**βuuβugɔ**	'to sweep'
o:	**won^{n}dugɔ**	'to live together'	**βoβru / bobi**	'mortar'
ɔ:	**wɔllɔ / gɔllɛ**	'cheek'	**βɔldɛ / bɔllɛ**	'word'
a:	**waa^{n}du / baadi**	'monkey'	**βaatugɔ**	'to die (animals)'
ɛ:			**βɛɛlɔ**	'hunger'
e:			**βelugɔ**	'to be sweet, good'
i:			**βiigɔ**	'to say'

The distribution of [w] and [β] in Ringimaaji could suggest, however, that [w] is historically derived from [β] occurring before the vowels {a, ɔ, o, u}. However, the spreading of a feature [–front] is unlikely. Spreading of the feature [+back] would explain the occurrence of [w] before {ɔ, o, u} but not for [a] which is [–back]. And the rule should be optional because [β] also occurs before these vowels. Synchronically [β] is phonologically distinct.

The approximant [ɥ] can be described as an allophone of [w] in Maasina and Mauritania. The approximant [β] can be described as a separate phoneme in Cameroon. These statements are true but [w], [β], and [ɥ] are treated as segments with a restricted distribution in this study because there is a great similarity between the distribution of the labial glides in the dialects. The complementary distribution of [w] and [ɥ] in Pulaar and Maasina should be noted, more interesting is the development of [β] in Ringimaaji and Aadamaawa where this consonant has been reanalyzed as the phonological counterpart of [b] in the consonant alternation system in order to disambiguate the two alternation sets **w** : **b** : **^{m}b** and **w** : **g** : **^{n}g** (see section 3.1.6).

The hypothesis is that the Fulfulde dialects of the Ringimaaji, the Dageeja, and Aadamaawa share an innovation of the distribution of [β]. The fact that [w] does not occur in these dialects before front vowels is described by the same word structure condition (14) as in Maasina. But the segment [β] is introduced in environments where ambiguity related to the consonant alternation of [w] occurs replacing the **w** : **b** : **^{m}b** set with **β** : **b** : **^{m}b** so that the alternation pattern is again predictable from the (basic) continuant consonant (see Anderson 1976:131-2). The hypothesis is that the consonant [β] developed from the

consonant [ɥ] and was given some distinct phonetic features like more friction to allow its presence before [–front] vowels.

The hypothesis of Mohamadou (1985:43) that [β] is a retention of the [+continuant] consonant alternating with [b] is rejected because there are still too many examples where [w] alternates with [b]. The ambiguity of [w] alternating with both [b] and [g] results from the loss of the [+continuant] consonant *ɣ alternating with the [–continuant] consonant [g]. And because a (historical) phonological rule changing [β] to [w] before [a] is not phonetically plausible: what element or place feature could be spreading from [a] to [β] causing [β] to become labiovelar? In Chapter three on initial consonant alternation some of the last statements will be further explained and illustrated.

2.9 VOWEL ASSIMILATION

In this section some assimilation rules for vowels are discussed. All vowel assimilation rules in Maasina are anticipatory, i.e. a vowel assimilates to the following vowel. The rules of frontness assimilation and the fusion of **aw** > **ɔɔ** apply only in a few frequently used words, whereas the ATR-harmony applies without exception in all words.

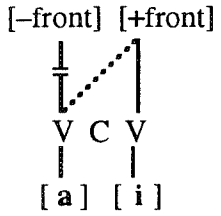
2.9.1 FRONTNESS ASSIMILATION

The phonological rule of frontness assimilation describes the change of the vowel [a] to [ɛ] before a vowel [i] in the following syllable (of the same word). This rule must apply after the ATR-harmony because the vowel [ɛ] resulting from an underlying [a] does not obey the vowel harmony rule. The sequence **ɛ-i** usually undergoes ATR-harmony resulting in the sequence **e-i** but not in the words that undergo frontness assimilation of [a]. There is one word where the rule of frontness assimilation applies in all Fulfulde dialects.

***yah+i** > **yɛhi** 'went'

Frontness assimilation is an optional rule which only applies to a few high frequency words.

P-rule 15 (optionally): frontness assimilation of [a] to [ɛ]



The number of words where the frontness assimilation occurs is a little larger in Maasinankoore. In some instances two forms of a word exist: with and without the frontness assimilation. The frontness assimilation seems to occur more often in the centre of Maasina than in its periphery, i.e. Kunaari, Gimballa or the Haayre.

sadʃii	or	**sɛdʃii**	'hello' [lit: (it) has been difficult?]
ⁿjanⁿdi	or	**ⁿjɛnⁿdi**	'iron'
laɓi	or	**lɛɓi**	'knife'

The words given here are the only examples of frontness assimilation found in the Maasina data. The fact that examples of frontness assimilation are very few and are very frequently used words suggests that this rule is a recent innovation.

2.9.2 TOTAL VOWEL ASSIMILATION

Short unstressed vowels can assimilate completely to the vowel in the following syllable.

fill-an-tɔ	or	**fill-ɔn-tɔ**	'will tell for'	tell-DAT-M.INCOMPL
haɓɓ-anɔɔka	or	**haɓɓ-ɔnɔɔka**	'has not been tied'	tie-N.P.COMPL-PAST

This rule is optional in the above examples. Total vowel assimilation has occurred in a number of fused morphemes. It can explain the first vowel in the class suffixes **-ɛrɛ**, **-iri**, **-uru** and in conjugational suffixes such as **-ata**, **-ɛtɛ**, and **-ɔtɔ**.

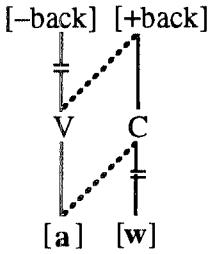
2.9.3 MERGER OF [a] WITH [w]

The vowel [a] can merge with a following labiovelar [w] to form a long vowel [ɔɔ] . Only two examples are available in the data.

***jawm**	>	**jɔɔm**	'possessor of'
mawdʃɔ	>	**mɔɔdʃɔ**	'old, great'

Different phonological changes occur when ***aw** > **ɔɔ**, i.e. spreading of the feature [+back] and the deletion of the labiovelar [w] resulting in compensatory lengthening of the vowel [ɔ]. These changes are represented in P-rule 16.

P-rule 16 (optional): merger of [a] and [w] resulting in [ɔɔ]



The optionality and the very restricted number of words in which the merger of [a] and [w] occurs make it that this rule is labelled as a P-rule. The application of P-rules can depend on the frequency of a word and on the rapidity of speech. There are no rigid boundaries for the application of optional P-rules. Often variant forms can be used alternatively by the same speaker, e.g. **mawdʃɔ** and **mɔɔdʃɔ** 'old person' with and without the rule applying. The phonological rules with limited application possibly indicate stylistic speech differences. The fact that no rigid boundaries for the domain of optional phonological rules can be given is in conflict with the assumption of lexical strata: the division of the lexicon into clearly

defined domains to which the application of a certain phonological rule is limited (see Paradis 1992 and Mohanan 1982).

2.9.4 ATR VOWEL HARMONY

Fulfulde is analyzed in this study as having seven phonemic vowels. This analysis is based on the data of the Maasina dialect and the Ringimaaji dialect. The vowels [**e**] and [**o**] are phonologically predictable variants of [**ɛ**] and [**ɔ**] in many environments but not everywhere. The instances where [**e**] and [**o**] cannot be predicted phonologically gives these two vowels phonemic status. All vowels can occur either as long or short vowels. The following figure shows the vowel inventory of Fulfulde.

i **u**
e **o**
ɛ **ɔ**
a

The present analysis deviates from the majority of the literature which describes Fulfulde as having five vowel phonemes (Mukarovsky 1963:25, Zoubko 1980:14, Sylla 1982:22, Bidaud & Prost 1982:9). The following figure shows the traditional five vowel inventory used by most authors.

i **u**
e **o**
a

These five vowels are also used in the official orthography of Fulfulde which has been recommended by the UNESCO meeting held in Bamako in 1966. Some authors state that phonetically there are more than five vowels. There are different proposals for the number of vocalic allophones and the rules predicting the occurrence of the additional vowels.

Stennes (1967:1) postulates five phonemic and nine phonetic vowels for the Aadamaawa dialect. He says that the allophony is conditioned by length. Short vowels are more central than long vowels. Only the quality of the vowel [**a**] doesn't seem to change with the change of length. The following figure shows Stennes' phonetic vowel system.

ii **uu**
i **ʊ**
e **o**
ɛɛ **ɔɔ**
a / aa

Arnott (1970a:386-7), who described the Fulfulde of Gombe in Nigeria, McIntosh (1984:10), who described Kaceccereere in Nigeria, and Mohamadou (1985:43), who described South Aadamaawa in Cameroon, also claim that there are five contrastive vowel phonemes of whose allophones are conditioned by vowel length. They differ from Stennes

in that they state that the pronunciation of a short [**a**] is different from that of a long [**aa**] in quality. So they distinguish ten phonetic vowels.

The occurrence of ten different vowel qualities of which five are phonemic with vowel length as the conditioning factor for allophony is rejected here. The analysis followed here shows more similarity with Klingenheben's views. Klingenheben (1963:2, 8) proposes five vowels for Fulfulde with the following qualities.

i **u**
ɛ **ɔ**
a

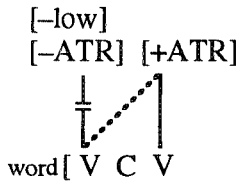
He also states that the vowels [**e**] and [**o**] do occur as a result of partial assimilation to a following vowel [**u**]. He does not distinguish these last two vowels because they do not indicate a difference in meaning.

Field work on the Fulfulde of Maasina in Mali and on the Ringimaaji dialect in Cameroon does not show a difference in vowel height between long and short vowels. The only difference in vowel quality that is predictable in certain environment is caused by assimilation to other [+ATR] vowels. This vowel harmony occurs independently of vowel length. The verb stems ***fɔɔɗ-** 'pull' and ***rɛm-** 'cultivate' undergo [+ATR] assimilation when they are followed by the [+ATR] vowel [**i**].

Maasina	Ringimaaji	
mi fooɗ-ii mɔ	**mi fooɗ-i mɔ**	'I dragged (pulled) him.'
ʔɔmɔ fɔɔɗ-a taaba	**ʔɛmɔ fɔɔɗ-a taaba**	'He smokes (pulls) tobacco.'
ʔɔmɔ rɛm-a	**ʔɛmɔ rɛm-a**	'He is cultivating.'
mɔ rem-ii	**ʔɔ rem-i**	'He has cultivated.'

The vowels [**e**] and [**o**] in the examples above are derived. They are conditioned by assimilation to a following [+ATR] vowel according to the rule of ATR-harmony.

A-rule 17: ATR assimilation



A-rule 17 states prevents that a [+ATR] time slot precedes a time slot that is [–ATR] and [-low] in the same word. The feature [–low] is included in this word structure condition to describe the fact that the vowel [**a**] blocks ATR-harmony. The word boundary is essential in the structure condition and the related repair rule because [+ATR] harmony does not cross word boundaries. The fact that intervening consonants are not linked to the ATR tier makes it possible for the feature [+ATR] to spread to a vowel in a preceding syllable skipping the intervening consonants without causing the crossing of association lines. On the ATR tier vowels are adjacent. The tier containing the autosegmental feature ATR is

only linked to vowels and not to consonantal time slots. An argument for this can be found in the fact that the approximants [**w**] and [**y**] do not cause ATR-harmony even though they do not differ much in their feature specification from the vocalic approximants [**u**] and [**i**]. The following examples show that the feature [+ATR] linked to the high vowels [**i**] and [**u**] is spread to preceding vowels in the same word but [+ATR] spreading does not take place before the glides [**y**] and [**w**].

kɔy^{n}gal	'foot'
ɟɔyrɛ	'cleverness'
jɔwrɔ	'owner' (short for **jɔm-wurɔ**)
ɲɔɔwdɛ	'to sow'
rɛwɓɛ	'women'
nɛwrɛ	'hand palm'
ɓɛyɗɔ	'woman who bore a child'
ɓɛydaari	'increase'

The [–ATR] vowels [**ɛ**] and [**ɔ**] in the stem become [+ATR] vowels [**e**] and [**o**] only when followed by a [+ATR] vowel in the following syllable. The occurrence of the approximants [**w**] and [**y**] does not have any influence on the vocalic quality of the [–ATR] vowels [**ɛ**] and [**ɔ**]. This is also evidence for the fact that the change from [**ɛ**] to [**e**] and from [**ɔ**] to [**o**] is caused by ATR-harmony, not by assimilation in tongue height .

Paradis (1986, 1992) and Dunn (1987, 1989) describe the Pulaar dialect spoken in Mauritania. Both Paradis (1986:138) and Dunn (1987:20) give five phonemic vowels [**a**, **ɛ**, **ɔ**, **i**, **u**]. They are the first to mention the ATR vocalic harmony and its phonological role in the occurrence of the allophony between the vowels **e** / **ɛ** and the vowels **o** / **ɔ**. They state that the vowels [**e**, **o**] are derived from the underlying vowels [**ɛ**, **ɔ**] respectively. A rule spreading the feature [+ATR] changes the [–ATR] vowels [**ɛ**, **ɔ**] to [+ATR] when followed by the [+ATR] vowels. In their framework an element which is the equivalent of the feature [+ATR] spreads from the [+ATR] vowels [**i**, **u**] on to the vowels [**ɛ**, **ɔ**].

Like in Pulaar (Paradis 1986:142), the feature [+ATR] only spreads to preceding vowels in the Maasina dialect and in the Ringimaaji dialect. The harmony span, that is the phonological domain in which the harmony rule is operating in both dialects, is the word. The feature [+ATR] spreads leftwards until the boundary of the phonological word. The harmony therefore is not necessarily displayed on the whole phonological word since [+ATR] spreading does not go rightward. The ATR-harmony (as both Paradis and Dunn also state) is blocked by the vowel [**a**]. The following words are given to show that ATR-harmony is blocked by the vowel [**a**].

jɛɛ-tati	'eight' (5+3)
jee-ɗiɗi	'seven' (5+2)
dɛf-aali	'has not cooked'
def-ii	'has cooked'

The final [+ATR] vowel [**i**] in the morpheme **-tati** does not have an effect on the vowel [**ɛɛ**] in the form **jɛɛ-** (a contraction of ***jɔy** 'five' + **ʔɛ** 'and'). An intervening vowel [**a**] in

the verbal conjugational suffix **-aali** also blocks ATR-harmony of the vowel [ɛ] in the morpheme **dɛf-** 'cook'. But the vowel [ɛ] becomes the [+ATR] vowel [e] when it precedes a [+ATR] vowel directly as in **defii** 'has cooked' and **jeeɗiɗi** 'seven'.

Both Dunn and Paradis present the vowels in the suffixes of the classes **ⁿgel** and **ⁿgol** underlyingly always as identical to the [+ATR] vowels [e, o]. There is no adjacent [i] or [u] present that could have caused the spreading of an [+ATR] feature (or element). Yet they do not include the vowels [e] and [o] in the phonological vowel inventory. Paradis does not include them for economic reasons: she claims that the number of morphemes is too small to call the vowel phonemic. Only the following morphemes in Pulaar occur with a [+ATR] vowel [e, o] without a conditioning adjacent [+ATR] vowel present.

gel	class suffix
gol	class suffix
fof	'all'
gorgol	'aunt' (perhaps suffix **gol**)

Paradis (1986:147) presumes a floating vowel in the underlying representation of these morphemes. This [+ATR, +high] floating vowel is deleted after predicting the [+ATR] vowel quality of the vowels. The deletion is explained by its occurrence in closed syllables where long vowels have a tendency to be shortened.

In the Maasina data there are several other morphemes which have the vowels [e] and [o] occurring as the underlying segments in the lexical form. There is no evidence for an underlying [+ATR] vowel [i] or [u] in these morphemes. The [+ATR] vowels [e] and [o] occur without any other [+ATR] vowel following. These underlying [+ATR] vowels trigger ATR-harmony in the preceding syllables of the same word. The following list are words which contain underlying vowels [e] or [o].

ⁿgel	NGEL class concord
ⁿgol	NGOL class concord
koy	KOY class concord
kol	KOL class concord
to	'there, yonder'
ley	'under, on, in'
dow	'above, on, in'
dee	'subsequently'
bey	'goats' (short for **behi** or **beʔi**)

The vowels in the preceding morphemes become [+ATR] when these morphemes with underlying vowels [e] or [o] are combined with other morphemes in a word. Many examples of ATR-harmony caused by [e] or [o] can be found since the suffixes **-ⁿgel** (also **-el**, **-wel**, **-gel**) and **-koy** (also **-oy**, **-woy**) form the singular and plural of the diminutive (which are productive word formations).

gɔr-kɔ	'man'
wɔr-ɓɛ	'men'
gor-el	'small man'
ⁿgor-oy	'small men'

The number of morphemes in which the [+ATR] vowels [**e**] and [**o**] occur underlyingly is perhaps marginal, but the number of words in which these affixes trigger [+ATR] harmony is considerable. The [+ATR] vowels have to be postulated underlyingly in order to correctly derive the vowel harmony with preceding vowels in the same word. Paradis' proposal of "floating" vowels that are [+ATR] reflects a possible historical development of the vowels [**e**] and [**o**]. It is also possible that historically [+high, +ATR] vowels have lowered their vowel height in a closed syllable. The cognate morpheme of the class suffix **ⁿgel** in other Fulfulde dialects are **ⁿgil** (speaker from the south of Mali) and **ⁿgii** (Fuuta Jallon) which indicates the possible occurrence of the [+high, +ATR] vowel [**i**] in the proto-Fulfulde form of this suffix. An example like **bey** 'goats' shows that an underlying vowel [**e**] has been followed by a [+ATR] vowel [**i**] historically. The plural forms **behi** or **beʔi** 'goats' which occur in other dialects confirm this. The list of morphemes with an underlying [**e**] or [**o**] is not impressive. For practical reasons a five vowel orthography is still the best recommendation. Nevertheless, the set of words where the occurrence of [**e**] or [**o**] is not phonologically conditioned points to the development of the phonemic status of these vowels, even if these vowels have a limited distribution. In this study, Fulfulde is analyzed with seven vowels whereby the occurrence of the vowels [**e**] and [**o**] can often be predicted by the application of ATR vowel harmony.

Chapter three
Consonant alternation

3.0 INTRODUCTION

In this chapter the consonant alternation of Fulfulde which has been the subject of many studies is described. Consonant alternation occurs word initially, stem finally, and suffix initially.

mɔ haal-ii	'he has spoken'	**ɓɛ kaal-ii**	'they have spoken'
laaw-ol	'road'	**laab-i**	'roads'
dane-wal	'white' (NGAL)	**juutu-ⁿgal**	'long' (NGAL)

The issue of initial consonant alternation is discussed in Fulfulde grammars (Gaden 1913, Arensdorff 1913, Labouret 1952, Taylor 1953, Klingenheben 1963, Stennes 1967, Arnott 1970a, Noye 1974, Schmidt 1974, Labatut 1982a, Bidaud & Prost 1982, Sylla 1982, Pelletier & Skinner 1982, Ndiaye 1983, Fagerberg-Diallo 1983a and 1984, McIntosh 1984, Mohamadou 1985, Abu-Manga 1986, Paradis 1986), as well as in a number of articles (Klingenheben 1924, Arnott 1959, Mukarovsky 1962a, Skousen 1972, Ouane & Koval 1976, Anderson 1976, Labatut 1982b and 1984, Lieber 1984, Paradis 1987a, Churma 1988, Ternes 1990, Abba 1991) and some comparative linguistic studies (Meinhof 1912, Homburger 1929, Sapir 1971, Doneux 1975, Creissels 1989). The word initial consonant alternation in Fulfulde has also been used to exemplify theoretical issues in general linguistics (Sagey 1982, Wiswall 1989, Prunet 1992, Grijzenhout 1991). The consonant alternation in stem final position has received much less attention (Klingenheben 1941:30, Labatut 1982b). The conditioning environment of the stem final consonant alternations is visible at the surface (e.g. syllable structure), whereas the conditioning environment for the phonological changes occurring in word initial position appears to be absent.

Efforts have been made to explain the consonant alternations at the beginning of the suffix forms on analogy with the word initial consonant alternations (Skousen 1972, McIntosh 1984). In fact the similarity of the initial consonant alternations in stems with the alternations occurring in suffixes was the reason for calling the sets of suffixes "grades": the initial consonant gradation of the suffix form lends its name to the grade system. McIntosh (1984:36) gives the following list of alternating consonants in nominal class suffixes in Kaceccereere:

grades	Zero (A)	Continuant (B)	Plosive (C)	Prenasalized (D)	similar initial set
	Ø	**w**	**g**	**ng**	[**w** : **g** : **ⁿg**]
	Ø	**y**	**g**	**ng**	[**y** : **g** : **ⁿg**]
	r	**r**	**d**	**nd**	[**r** : **d** : **ⁿd**]
	Ø	**h**	**k**	**k**	[**h** : **k** : **k**]
	Ø	**j**	**ɗ**	**ɗ**	

Class suffixes have up to four different forms which differ mainly in the manner of articulation of the initial consonant. The similarity of stem initial and suffix initial consonant alternations led to the assumption that the suffix grades were in fact the manifestation of the consonant alternation system in class suffixes (McIntosh 1984:36). However, the label "consonant alternation" in itself does not provide any explanation for these frequent sound changes. The whole of Chapter six is dedicated to the function and the historical phonological development of the different suffix forms, which is further exemplified in the extensive description of all the possible forms of the noun class suffixes in Chapter seven.

3.1 INITIAL CONSONANT ALTERNATIONS

3.1.1 THE FORMS OF WORD INITIAL CONSONANT ALTERNATIONS

In Fulfulde the initial consonant of nominal and verbal stems can alternate. The initial consonant alternation in such stems is conditioned by morphological (i.e. lexical or derivational) factors. The morphological conditioning environments in nouns, adjectives, and verbs are discussed separately because they show different patterns of consonant alternation.

A number of alternating consonants undergo influence from the following vowel, this process is demonstrated in section 3.1.5. These assimilations make some of the alternations irregular. These irregularities can also be explained historically, they are further discussed in the section on dialect comparison (3.1.6) where the stem initial consonant alternations of the Maasina dialect are compared with those of other Fulfulde dialects. The comparison with the Fulfulde dialect of the Ringimaaji proves to be particularly useful for the diachronic analysis.

This section discusses the forms of the alternating consonants. The word initial alternations are frequent and regular, and they obey a certain phonological pattern; i.e. the initial consonants that alternate usually have different manners of articulation, but the place of articulation and the voicing usually do not change. The figure below shows the word-initial consonant alternations that occur in Maasina.

														exceptional	
(F)	**ɥ**	**w**	**b**	**r**	**d**	**y**	**j**	**y**	**w**	**g**	**f**	**s**	**h**	**ʔ**	**h**
	|	|	|	|	|	|	|	|	|	|	|	|	|	|	|
(P)	**b**	**b**	**b**	**d**	**d**	**j**	**j**	**g**	**g**	**g**	**p**	**c**	**k**	**g**	**k/d**
	|	|	|	|	|	|	|	|	|	|	|	|	|	|	|
(N)	**^{m}b**	**^{m}b**	**^{m}b**	**^{n}d**	**^{n}d**	**^{n}j**	**^{n}j**	**^{n}g**	**^{n}g**	**^{n}g**	**p**	**c**	**k**	**^{n}g**	**k/^{n}d**

Each horizontal row presents a series of consonants that occur in a particular morphological (or lexical) position. Each vertical row presents a set of consonants which occur initially in the same stem. This set is called an alternating consonant. There are basically three possible forms of an alternating consonant in initial position. The three series of consonants are labelled the basic series (F), the plosive series (P), and the prenasalized series (N). In the literature, the plosive consonants are often omitted from the first basic series (F) even though there are a number of stems with a basic plosive initial consonant that occur in the same morphophonological (lexical) environment as stems with a initial continuant (approximant or fricative). The fricatives and approximants only occur in the basic series. This is why Arnott

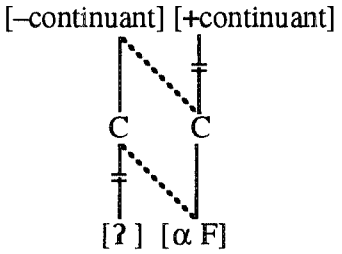
(1970:43) describes the three forms as the fricative series (F), the plosive series (P), and the nasal compound series (N). Arnott's (F) series only contains fricatives and approximants. McIntosh (1984:30) uses the terms continuant series, plosive series, and prenasalized series. Her first series also does not include plosives so she can use the name "continuant series" because the feature [+continuant] is shared by the fricatives and approximants that occur in the first series. In this study the basic series is defined differently from Arnott's fricative series, but Arnott's abbreviation (F) is used to avoid confusion with the B used for grade B suffixes. The underlying form of a stem is postulated with the initial consonant from the basic series (F) which can be a continuant or a plosive initial consonant, sometimes even a prenasalized initial consonant. Certain consonants do not alternate in Maasina:

t l m n ɲ ŋ ɓ ɗ j ʔ

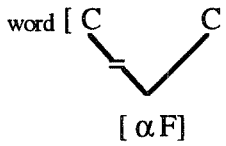
The rules that are postulated for the alternations can explain which consonants alternate and which do not. The (F) series contains the underlying initial consonant of the stem. The consonant form in the (P) series is arrived at by two rules: gemination caused by the merger of the stem initial consonant with a glottal stop and the shortening of the geminate consonant syllable initially. The phonological changes that the alternating consonants undergo are identical with the changes that a consonant undergoes when it becomes geminate. An additional rule describing the shortening of this geminate consonant syllable initially prevents an ill-formed syllable structure.

In the synchronic description a preceding glottal stop is postulated underlyingly, the only effect of this glottal stop on the surface is the change of the feature [+continuant] of the stem initial consonants to [-continuant]. This glottal stop precedes stems in word derivations where the (P) series occurs. The following rules apply in the derivation of the initial consonant in the plosive series (P).

Merger resulting in geminate (P-1)



Word initial de-gemination



The postulation of gemination resulting from merger of the basic consonant with an underlying glottal stop (P-rule 1) in the environments where the (P) series occur produces the correct changes and also accounts for the fact that certain consonants do not alternate. The following lists show the stages that occur in the derivation of the plosive series. The first row gives the underlying consonant from the basic series (F). The second row gives the geminate which is the result from merger of the underlying consonant with a glottal stop. The third row gives the plosive consonant, resulting from shortening the long consonant in syllable initial position.

	(F)	ʔ+(F)	(P)	(F)	ʔ+(F)	(P)
alternating:	**w**	**bb**	**b**	**f**	**pp**	**p**
	r	**dd**	**d**	**s**	**cc**	**c**
	y	**jj**	**j**	**h**	**kk**	**k**
not alternating:	**b**	**bb**	**b**	**t**	**tt**	**t**
	d	**dd**	**d**	**l**	**ll**	**l**
	j	**jj**	**j**	**m**	**mm**	**m**
	g	**gg**	**g**	**n**	**nn**	**n**
	(k	**kk**	**k)**	**ɲ**	**ɲɲ**	**ɲ**
	(c	**cc**	**c)**	**ŋ**	**ŋŋ**	**ŋ**
	(p	**pp**	**p)**	**ɓ**	**ɓɓ**	**ɓ**
	(^{m}b	**m^{m}b**	**^{m}b)**	**ɗ**	**ɗɗ**	**ɗ**
	(^{n}d	**n^{n}d**	**^{n}d)**	**ʄ**	**ʄʄ**	**ʄ**
	(^{n}j	**$ɲ^{n}$j**	**^{n}j)**	**ʔ**	**ʔʔ**	**ʔ**
	(^{n}g	**$ŋ^{n}$g**	**^{n}g)**			

The consonant series in parentheses are rare. They are nevertheless included to give a complete picture and to show why these consonants (if they are the underlying initial consonant) do not change in the (P) series. The alternations of the approximants with the voiced velar stop [**g**] and the other exceptional alternations are not included in the above list. The following sets of alternating consonants do not occur frequently, these alternations are also exceptional because of a change of place features.

(F)	**w**	**y**	**ʔ**	**h**
	|	|	|	|
(P)	**g**	**g**	**g**	**d**

The place changes that occur in these alternations do not result from gemination (P-rule 1) alone. To account for the correct alternation, the quality of the vowel adjacent to the stem initial consonant must be taken into account. The alternations with [**g**] are further discussed in section 3.1.5. The alternation **h** : **d/k** : **^{n}d/k** is explained by suppletion of the two verb stems ***hɔkk-** 'give' and ***rɔkk-** 'be generous'. In Maasina, this alternation occurs only in the following derivations of related words.

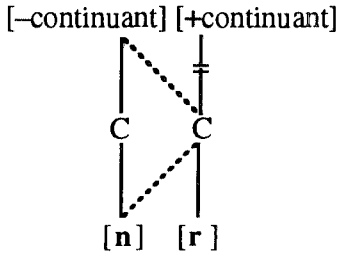
(F)	**hokk-udɛ**	'to give'	
(F)	**mi hokk-ii**	'I have given'	(centre and periphery of Maasina)
(N)	**ɓɛ kokk-ii**	'they have given'	(centre and periphery of Maasina)
(N)	**ɓɛ ^{n}dokk-ii**	'they have given'	(periphery of Maasina)
(P)	**dɔkk-al**	'gift'	
(P)	**dɔkk-ɔ**	'generous person'	

The existence of three verb stems with related meanings: **rɔkk-** 'to give, to give a present, to permit' (FJ, FT, M, NE), **ʔɔkk-** 'to give, to offer, to be generous' (FJ, FT, G), and **hɔkk-** 'to give' (M, DO) points to the fact that suppletion has taken place. The alternation **h** : **d** : **^{n}d**

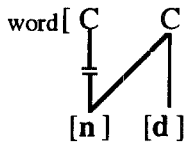
is not considered to be a true consonant alternation because forms that are derived from the verb stem usually follow the regular alternation **h** : **k** : **k** in Maasina. The alternation **h** : **ⁿd** is only found productively with some (elder) speakers who use it in the singular and plural form of the verb. The nouns **dɔkkɔ** 'generous person' and **dɔkkal** 'gift' are derived from the underlying verb stem **rɔkk-** 'to give, to be generous', the forms with an initial [**h**] or [**k**] are derived from the underlying stem **hɔkk-** 'to give'. The use of the form **ⁿdokkii** 'have given' in the periphery of Maasina as the plural of **hokkii** 'has given' remains problematic unless a semantic difference can be demonstrated. Possibly a single subject literally gives, i.e. hands over a gift, while a plural subject cannot literally hand over a gift, therefore the verb 'to be generous' is more compatible with a plural subject than a verb literally meaning something like 'to hand over'.

The prenasalized series (N) can be derived from the basic series in a similar way as the (P) series. A nasal prefix **n-** precedes word stems which appear in derivations with the (N) series in the underlying structure. This nasal element is deleted by a rule preventing an ill-formed syllable, because two consonants are not allowed syllable initially. The effect of this nasal element is only noticed when the basic or underlying initial consonant of the stem is [+continuant] or [+voiced]. The following figure shows a word derivation formed with the (N) series of a stem with an underlying initial consonant [**r**].

Head strengthening and Prenasalization



Word initial consonant simplification



The postulation of prenasalization as a result of the spreading of a nasal element to the following voiced consonant (A-rule 2) in the environments where the (N) series occurs produces the right changes and also accounts for the fact that a number of consonants remain unchanged. Voiceless consonants are identical in the plosive and the prenasalized series. The similarity in phonological form between the plosive and prenasalized series is due to the fact that forms preceded by a nasal always have to be plosive because [+nasal] cannot be followed by [-continuant]. And the segment [+nasal] can not combine with the segment [-voice] in one time slot, that is why the voiceless consonants cannot become prenasalized and the reason why their form in (P) and (N) is identical. The following figure lists the derivations of the prenasalized series of all the possible underlying consonants that can occur stem initially.

	(F)	n+(F)	(N)	(F)	n+(F)	(N)
alternating:	**w**	**m^{m}b**	**^{m}b**	**h**	**ŋk**	**k**
	r	**n^{n}d**	**^{n}d**	**b**	**m^{m}b**	**^{m}b**
	y	**ɲ^{n}j**	**^{n}j**	**d**	**n^{n}d**	**^{n}d**
	f	**mp**	**p**	**j**	**ɲ^{n}j**	**^{n}j**
	s	**ɲc**	**c**	**g**	**ŋ^{n}g**	**^{n}g**
not alternating:	**t**	**nt**	**t**	**(^{m}b**	**m^{m}b**	**^{m}b)**
	m	**mm**	**m**	**(^{n}d**	**n^{n}d**	**^{n}d)**
	n	**nn**	**n**	**(^{n}j**	**ɲ^{n}j**	**^{n}j)**
	ɲ	**ɲɲ**	**ɲ**	**(^{n}g**	**ŋ^{n}g**	**^{n}g)**
	ŋ	**ŋŋ**	**ŋ**	**(k**	**ŋk**	**k)**
	ɓ	**mɓ**	**ɓ**	**(c**	**ɲc**	**c)**
	ɗ	**nɗ**	**ɗ**	**(p**	**mp**	**p)**
	ʄ	**ɲʄ**	**ʄ**			
	ʔ	**nʔ**	**ʔ**			
	l	**nl**	**l**			

The glottal stop [ʔ] cannot be preceded by a nasal. The hypothesis is that the preceding nasal element is simply lost without any effect. The consonant [l] is rarely preceded by a nasal: the word **jɔnlɛ** 'seats' has an alternative form **jɔllɛ** which shows complete assimilation of the nasal to the geminate lateral [ll]. The assumption is that the nasal element is lost before a stem initial [l] without any effect, like the loss of the nasal element before the glottal stop or voiceless consonants. Again, the table above does not include the following exceptional alternations.

(F)	**w**	**y**	**ʔ**	**h**
	|	|	|	|
(N)	**^{n}g**	**^{n}g**	**^{n}g**	**^{n}d**

The alternations with the prenasalized velar stop [**^{n}g**] are discussed in section 3.1.5. The exceptional alternation set [**h** : **^{n}d**] is explained by suppletion of the stems **rɔkk-** and **hɔkk-**. Alternation does not take place in certain words, even if the initial consonant belongs to one of the alternating sets. This is discussed in the following sections which describe the exact morphological (lexical) environments conditioning the alternations. The semantic content of the prefixes **ʔ-** and **n-** is not clear, for the moment they are postulated as part of the class marking when they occur in nouns.

3.1.2 INITIAL CONSONANT ALTERNATION IN NOUNS

The phonological form of the initial consonant of a noun is conditioned by its noun class. In the following figure the classes are grouped according to the phonological form that they condition word initially.

series	singular classes	plural classes
(F)	NDE, NGE, KO, NGO, NDU	'BE
(P)	NGAL, NGEL, NGOL, KAL, 'O, 'DUM	'DI, 'DE
(N)	KA, NGA, NDI, NGU, 'DAM, KI	KOY

Alternation of the initial consonant can be shown in word derivations whereby a stem is found with a number of different class suffixes. The following nominal paradigms, consisting of the singular, plural, diminutive, and augmentative forms of a noun, show the initial consonant alternation depending on the class marker.

			'village'	'song'	'goat'	'Fulbe'	'piece'
stem			**wur-**	**yim-**	**bɛh-**	**ful-**	**taɟ-**
sg. class			NGO (F)	NGOL (P)	BA (N)	'O (P)	NDE (F)
sg.			**wurɔ**	**jimol**	**ᵐbɛɛwa**	**pullɔ**	**tayrɛ**
pl. class			'DE (P)	'DI (P)	'DI (P)	'BE (F)	'DE (P)
pl.			**gurɛ**	**jimi**	**bey**	**fulɓɛ**	**taɟɛ**
dim.	NGEL	(P)	**gurel**	**jimel**	**behel**	**pulel**	**taɟel**
dim. pl.	KOY	(N)	**ⁿguroy**	**ⁿjimoy**	**ᵐbehoy**	**puloy**	**taɟoy**
augm.	NGAL	(P)	**gural**	**jimal**	**bɛhal**	**pulal**	**taɟal**
augm. pl.	'DE	(P)	**gurɛɛlɛ**	**jimɛɛlɛ**	**bɛhɛɛlɛ**	**taɟɛɛlɛ**	

The underlying initial consonant of the stem is the consonant that appears in words with a consonant from the basic series (F). The stem ***yim** of **jimol** 'song' occurs elsewhere in the language as the verb stem **yim-** of the verb 'to sing'. When a stem never occurs in an environment which conditions the basic series, it is not possible to say what the form of the basic consonant would have been. When a stem is only found in environments where the plosive series (P) or the prenasalized series (N) occur, the underlying stem initial consonant is taken from the plosive series , e.g. in the stem ***bɛh-** 'goat'. If a certain stem occurs only with a prenasalized consonant, then this prenasalized consonant is taken to be the underlying initial consonant of the stem. The latter is rare, it occurs e.g. in the verb stem **ⁿdaar-** 'to look for'.

Clear examples of suffixes conditioning the form of the initial consonant can be found in the singular/plural formation which are both formed from the same stem, but with different suffixes. The diminutive and augmentative forms show their effect on the initial consonant in the same nominal paradigm. Other derivational relations also show that the change of the initial consonant is linked to the change of class suffix, e.g. in the following paradigms of uncountable mass nouns and small quantities.

		'porridge'	'soil'	'water'	'milk'
stem		**bɔs-**	**lɛy-**	**diy-**	**hɔs-**
uncountable: NDI, liquid: 'DAM	(N)	**ᵐboyri**	**leydi**	**ⁿdiyam**	**kɔsam**
small quantity of: KAL	(P)	**bɔsal**	**lɛykal**	**diyal**	**kɔsal**

The words in the 'DAM class can denote liquids, the words in the NDI class can denote uncountable quantities. The same stems combine with the KAL class to denote small

quantities. The following nominal derivations of terms for cows and bulls, which are based on the same stem, show the three possible initial consonant forms.

			'front in different colour'	'with white sides'	'with small spot'	'with coloured neck'
stem			**wɔh-**	**waag-**	**sɔl-**	**daak-**
cow	NGE	(F)	**wɔhɛ**	**waagɛ**	**sɔlɛ**	**daakɛ**
bull	NDI	(N)	**ᵐboori**	**ᵐbaagiri**	**coldi**	**ⁿdaakiri**
plural	'DI	(P)	**bohi**	**baagi**	**coli**	**daaki**

The stems describe types of cattle. The cow names are derived from that stem with a suffix from the NGE class, and bull names occur in the NDI class. The plural forms of both are derived with a suffix from the 'DI class. The effect of the class on the initial consonant is also shown by the names of trees and their products based on the same stem.

			'doum palm'	'tamarind'	'acacia'
stem			**yɛllɛ-**	**yaɓɓ-**	**wawd-**
tree	KI	(N)	**ⁿgelleewi**	**ⁿjammi, ⁿjaɓɓi**	**ⁿgawdi**
fruit	NDE	(F)	**yɛllɛrɛ**	**yaɓɓɛrɛ**	**wawdɛrɛ**
plural	'DE	(P)	**gɛllɛɛjɛ**	**jaɓɓɛ**	**gawdɛ**
flour	NDI	(N)	**ⁿgelleeri**		

These words show derivations of the same stem in a number of classes with a particular semantic relation between these classes, e.g. a tree name in the KI class (N) and the products taken from that tree, like fruits in the NDE class (F), flour in the NDI class (N), and foliage in the KO class (F). The plural of fruits and trees in the 'DE class (P) are identical.

The stem initial changes and the suffixes added to the stems suggest that the marking of the noun class involves two morphemes where one element precedes the noun stem and another follows the noun stem. The underlying forms postulated for the class markers are shown in the following table (see section 6.2).

class	initial series	noun derived with that class				
NDE	(F)			noun stem	+	***rɛ**
NGE	(F)			noun stem	+	***wɛ**
KO	(F)			noun stem	+	***hɔ**
NGO	(F)			noun stem	+	***wɔ**
NDU	(F)			noun stem	+	***ru**
'BE	(F)			noun stem	+	***ɓɛ**
'O	(P)	*ʔ	+	noun stem	+	*ʔɔ
NGEL	(P)	*ʔ	+	noun stem	+	***wel**
NGAL	(P)	*ʔ	+	noun stem	+	***wal**
NGOL	(P)	*ʔ	+	noun stem	+	***wol**
KOL	(P)	*ʔ	+	noun stem	+	***hol**

class	initial series	noun derived with that class				
KAL	(P)	*ʔ	+	noun stem	+	***hal**
'DUM	(P)	*ʔ	+	noun stem	+	***ʔum**
'DE	(P)	*ʔ	+	noun stem	+	***ʔɛ**
'DI	(P)	*ʔ	+	noun stem	+	***ʔi**
NGU	(N)	***n**	+	noun stem	+	***wu**
KA	(N)	***n**	+	noun stem	+	***ha**
BA/NGA	(N)	***n**	+	noun stem	+	***wa**
KI	(N)	***n**	+	noun stem	+	***hi**
NDI	(N)	***n**	+	noun stem	+	***ri**
'DAM	(N)	***n**	+	noun stem	+	***ʔam**
KOY	(N)	***n**	+	noun stem	+	***hoy**

The meaning of the element preceding the noun stem should be closely related to the meanings expressed in the class suffix. In Bedik, a related language, the consonant alternation can be used to indicate the distinction between singular and plural (Ferry 1968). For Fulfulde, the historical hypothesis is that the alternations are remnants of a phonological conditioning by class markers that preceded the noun stem, indicating the fact that the noun class markers were once prefixes (see De Wolf 1985a). However, the initial consonant alternation sometimes functions synchronically as an additional marking of the difference between singular and plural in some singular/plural class pairs. Perhaps the change of the initial consonant series of the KI class in Maasina to a prenasalized series occurred to distinguish the singular from the plural stem. This change is an innovation of the dialects of Maasina and the adjacent Liptaako. In other dialects the initial consonant of the KI class is from the plosive series (P). The following words have different initial consonant series affecting the initial consonant of the KI class in different dialects.

	Tooro	Liptaako	Maasina	Aadamaawa
'palm'			**ⁿduɓɓi**	**duɓɓi**
'doum palm'		**ⁿjelleehi**	**ⁿgelleewi**	**gellohi**
'tamarind'	**jammi**	**ⁿjataɓi**	**ⁿjaɓɓi**, **ⁿjammi**	**jaɓɓi**
			pl. **jaɓɓɛ**	pl. **jaɓɓɛ**
'acacia'		**ⁿgawdi**	**ⁿgawdi**	
'shelter'	**daŋki**		**ⁿdaŋki**	**daŋki**
			pl. **dandɛ**	pl. **daŋdɛ**

The (F), (P), and (N) series all occur in both singular and plural classes. There are a few class pairs that have the plosive series both in the singular and in the plural, i.e. NGAL/'DE, NGOL/'DI and KOL/'DI, but it happens more frequently that the series of a particular singular class is different from the series in its plural class. The meaning of the prefixes **ʔ-** (P) and **n-** (N) must be in close relation with the semantic content of the class marker. Nevertheless, it is not possible to link their meaning to a singular/plural distinction.

Initial consonant alternation does not occur in most relationship terms and in many loan-words. The relationship terms occur in two forms depending on whether they are used in an alienable or inalienable construction. The inalienable form is used as the address term for such a relative and it is the form used with the special genitive marker for relationship terms. The inalienable form does not have a class suffix. The absence of such a suffix not surprisingly results in the absence of initial consonant alternation because the class suffix conditions the initial consonant alternation in nouns. However, the initial consonant alternation also does not take place when the alienable forms of the relationship terms contain a suffix of the 'O or 'BE class.

baaba, ʔabba	'father!'		
baab-ir-aa-ɗɔ	'a father'	'O	(P)
baab-ir-aa-ɓɛ	'fathers'	'BE	(F)
gɔggɔ	'aunt! (father's sister)'		
goggiraaɓɛ	'aunts (father's sisters)'	'BE	(F)
dendi	'cross cousin!'		
dendiraaɓɛ	'cross cousins'	'BE	(F)
ban^{n}diraaɗɔ	'parallel cousin'	'O	(P)
gen^{n}di	'wife!'		
kaw	'uncle! (mother's brother)'		
daadi	'name for eldest sister (< mother)'		
yaaya	'name for eldest sister (< mother)'		

The following relationship terms, however, do show initial consonant alternation.

dɛwɔrɗɔ / rɛwɔrɓɛ	'potential in-law; someone for whom you have a restraint, with whom you are not allowed to eat'
bappaaŋɔ / wappayɓɛ	'uncle (father's brother)'

There is no vocative form of the kinship term for **dɛwɔrɗɔ**, perhaps because there is an avoidance behaviour prescribed for this relative and one is not supposed to call out to one's **dɛwɔrɗɔ**. The inalienable form with which one calls one's father's brother is the term **ʔabba** 'father' (rather than the term **baaba** 'father' which is more informal). These words do not have an inalienable relationship term which is based on the same stem. This means that these stems always occur with a class marker. Like in other nouns, this class marker conditions the form of the initial consonant.

Loan-words also often do not show consonant alternation. Most of them do not have a class suffix that could condition the initial consonant alternation. Some loan-words are morphologically integrated and have a class suffix which has either been added or the last syllable of the loan-word is interpreted as the suffix. The class suffix which can be added to integrate loan-words in a particular noun-class is always a suffix of grade B. However, even then word initial consonant alternation often does not take place. Frequently, no initial consonant alternation occurs when the plural, diminutive, and augmentative forms are derived by the addition of grade B suffixes to the singular noun:

	'coal pot' [Fr. '**réchaud**']		'word, language' [Ar.]	
sg.	**rɛsɔ**	'O (P)	**haala**	'O (P) or KA (N)
pl.	**resooji**	'DI (P)	**haalaa-ji**	'DI (P)
dim.	**resowel**	NGEL (P)	**haala-wel**	NGEL (P)
dim. pl.	**resowoy**	KOY (N)	**haala-woy**	KOY (N)
augm.	**rɛsɔwal**	NGAL (P)		

The absence of word initial consonant alternation is common for loan-words that do not have a class suffix in the singular form:

sakkoosi / sakkoosiiji	'bag'	**sacoche**	[French] (Tioulenta 1991:209)
fɔtɔ / fɔtooji	'photo'	**photo**	[French] (Tioulenta 1991:209)
seesi / seesiiji	'chair'	**chaise**	[French]
farilla / farillaaji	'duty'		[Arabic]
sɔgɔnɛ / sogoneeji	'elbow'	**sogone**	[Soninke] (Tioulenta 1991:351)
futtɛ / futteeji	'bride price'	**futte**	[Soninke] (Tioulenta 1991:348)

Word initial consonant alternation is often attested when loan-words are integrated with the addition of a class suffix in the singular:

sagiirɛ / cagiijɛ	'cloth'	**sagi**	
hɛmɛrɛ / kɛmɛ	'one hundred'	**kèmé**	[Bambara] (Tioulenta 1991:332)
hɔlɔɔrɛ / kɔlɔɔjɛ	'kernel'	**kɔ́lɔ́**	[Bambara] (Tioulenta 1991:333)
punɛɛjɔ / funɛɛɓɛ	'twins'	**fune**	[Soninke] (Tioulenta 1991:348)

Loan-words in which the last syllable is interpreted as the class marker also show word initial consonant alternation:

'book' < **defter** 'scripture' [Ar.]		**kèmé** 'hundred' [Bambara] (Tioulenta 1991:332)	
dɛwt-ɛrɛ	sg.: NDE (F)	**kɛm-ɛ**	pl.: 'DE (P)
dɛwt-ɛ	pl.: 'DE (P)	**hɛm-ɛrɛ**	sg.: NDE (F)
dewt-el	dim.: NGEL (P)		
ⁿdewt-oy	dim. pl.: KOY (N)		
dɛwt-al	augm.: 'DE (P)		

Here the last syllable of the loan-word is interpreted as the class marker. Alternation does occur when the derived plural, diminutive and augmentative are formed by replacing this suffix (with, in this case, grade A suffixes). When loan-words do not undergo initial consonant alternation, then their plural, diminutive, and augmentative derivations are formed by the addition of grade B suffixes to the whole singular noun. The nouns in grade B are words that often do not undergo initial consonant alternation, not only when they have a loan-word as their stem but also when they are based on Fulfulde nouns.

	'rainy season'		'face'	
sg.	**ⁿduŋⁿgu**	'O < NGU (N)	**yɛɛsɔ**	NGO (F)
pl.	**ⁿduŋⁿguuji**	'DI (P)	**yeesooji**	'DI (P)

The absence of initial consonant alternation is caused by the derivational process of these nouns. Grade B nouns have a full noun functioning as their noun stem. The stem of such a noun already contains a class suffix that conditions the initial consonant. Thus, grade B nouns can have two class suffixes. The first class suffix belongs to the stem and the initial consonant does not change in the derivation. Based on this observation Anderson (1976:123) proposes the following generalization: when a form has more than one suffix, the initial series of the stem is that which is appropriate to the innermost of these. The following paradigms show that the class suffix in the stem determines the series of the initial consonant.

stem	**hɔɔ-rɛ**	'head'	NDE (F)	**yɛɛs-ɔ**	'face'	NGO (F)
sg.	**hɔɔrɛɛ-jɔ**	'chief'	'O (P)	**yɛɛsɔɔ-jɔ**	'person in front'	'O (P)
pl.	**hɔɔrɛɛ-ɓɛ**	'chiefs'	'BE (F)	**yɛɛsɔɔ-ɓɛ**	'persons in front'	'BE (F)

The nominal paradigms of **hɔɔrɛɛjɔ** 'chief' and **yɛɛsɔɔjɔ** 'person in front' are derived from the Fulfulde nouns **hɔɔrɛ** 'head' and **yɛɛsɔ** 'face' respectively. The suffix in the stem also determines the initial consonant of the derived words. The following grade B words do not contain an internal suffix and show initial consonant alternation.

	'cloth'		'stomach'	
sg.	**sagii-rɛ**	NDE (F)	**huusee-ru**	NDU (F)
pl.	**cagii-jɛ**	'DE (P)	**kuusee-ji**	'DI (P)
dim.	**cagi-wel**	NGEL (P)	**kuse-wel**	NGEL (P)
dim. pl.	**cagi-woy**	KOY (N)		

These loan-words are fully integrated and the initial series is determined by the class suffix. The singular noun also has a class suffix (compared with other forms in the nominal paradigm). The main difference between nominal paradigms with and without initial consonant alternation seems to lie in the relation between the singular and the rest of the nominal paradigm. If the plural, diminutive, and augmentative are derived by addition of a plural, diminutive or augmentative class suffix to the full singular noun, then no initial consonant alternation does occur (as in **yɛɛsɔ/yeesooji** 'face' and in **haala/haalaaji** 'word, language'). If those forms are derived by replacement of the singular class suffix by the suffixes of the plural, diminutive or augmentative class suffixes, then initial consonant alternation does take place (as in **sagiirɛ/cagiijɛ** 'cloth' and in **dɛwtɛrɛ**; **ⁿdewtoy** 'book; little books').

The change of class suffixes seems to indicate a greater integration in the noun class system, compared to the addition of class suffixes. Likewise the initial consonant alternation seems to indicate a greater integration into the noun class system compared to the absence of initial consonant alternation. That is also the reason why Tioulenta (1991:213-217) states that the absence of consonant alternation is an indication for a loan origin of a Fulfulde word.

3.1.3 INITIAL CONSONANT ALTERNATION IN ADJECTIVES

Gaden (1913:18) already talks about the influence of the class on the initial consonant. He states that the class determines the form of the initial consonant. As described in the previous section, the classes are divided into three groups. Each class determines that the initial consonant of a word belongs either to the basic (F), plosive (P), or prenasalized (N) series.

However, it appears to be necessary to modify this statement for the word class of adjectives in the Fulfulde of Maasina. The pattern of initial series appearing in adjectives that follow the head noun as a modifier is simpler than the pattern found in nouns. The prenasalized series (N) does not occur in adjectival stems which function as modifiers, only the plosive (P) and continuant (F) series occur. There is a correlation between these two initial series and the form of the class marker. This distribution seems typical for the Maasina dialect. The initial consonant can be predicted from the last segment of the noun class suffix when the adjective follows the head in a noun phrase. In the following examples the adjective is preceded by the noun class suffix of the demonstrative.

			series of modifier	series of noun
preceded by	**ⁿdii wodɓeeri**	'this red one'	(F)	(N)
vowel final suffix	**ⁿduu wodɓeeru**	'this red one'	(F)	id.
	ⁿdɛɛ wɔdɓɛɛrɛ	'this red one'	(F)	id.
	baa wɔdɓɛɛwa	'this red one'	(F)	(N)
	ⁿgɛɛ wɔdɓɛɛwɛ	'this red one'	(F)	id.
	ⁿgɔɔ wɔdɓɛɛwɔ	'this red one'	(F)	id.
	ⁿguu wodɓeewu	'this red one'	(F)	(N)
	kaa wɔdɓɛɛwa	'this red one'	(F)	(N)
	kii wodɓeewi	'this red one'	(F)	(N)
	kɔɔ wɔdɓɛɛwɔ	'this red one'	(F)	id.
	ɓɛɛ wɔdɓɛɛɓɛ	'this red ones'	(F)	id.
preceded by	**ⁿgal bodɓewal**	'this red one'	(P)	id.
consonant final	**ⁿgel bodɓewel**	'this red one'	(P)	id.
suffix	**koy bodɓewoy**	'these small red ones'	(P)	(N)
	kal bodɓewal	'this red one'	(P)	id.
	ⁿgol bodɓewol	'this red one'	(P)	id.
	ɓam bodɓejam	'this red one'	(P)	(N)
	ɓum bodɓejum	'this red one'	(P)	id.
preceded by	**ɓɛɛ bɔdɓɛɛjɛ**	'these red ones'	(P)	id.
laryngealized	**ɓii bodɓeeji**	'these red ones'	(P)	id.
vowel final suffix	**ʔɔɔ bɔdɓɛɛjɔ**	'this red one'	(P)	id.

All the adjectives that follow a noun ending in a consonant final suffix take the initial consonant from the plosive (P) series. All adjectives that take the initial consonant from the basic (F) series follow a class suffix ending in a vowel. The suffixes that end in a vowel and where the following adjective takes an initial consonant from the plosive (P) series have a [+constricted] consonant in the suffix. Perhaps the laryngealization of the vowel has an

influence on the initial consonant of the following adjective, causing the same phonological rule as when a glottal stop would have preceded the initial consonant of the adjective.

The fact that all class markers ending in a consonant {**l**, **m**, **y**} condition a stem initial plosive consonant can be explained by assuming an influence of the class marker on the noun (or demonstrative) preceding the adjectival stem. When the adjective is used as a modifier, either the suffix of the preceding noun or the suffix in the demonstrative preceding the stem is always there to trigger the phonological rule that causes the initial consonant plosive to prevent the sequence *[**l**] [continuant] or *[**m**] [continuant]. From the sonority hierarchy in Fulfulde (see section 4.4.4) it follows that continuants cannot be preceded by [**l**] or [**m**]. The change from a continuant to a plosive initial consonant takes place to prevent such an ill-formed sequence. This motivates the initial plosive consonant of the adjectives in words of the class NGEL, KAL, NGAL, NGOL, 'DAM, 'DUM.

The final consonant of the KOY class cannot be responsible for the strengthening of the initial continuant consonant of the stem, because according to the sonority hierarchy a sequence of two different glides is possible. Perhaps an older form of the class marker ***koyŋ** or ***koɲ** (these forms exist in other dialects) could explain the strengthening of a following consonant. Here a diachronic and cross-dialectal argument is needed to explain synchronic consonant alternations. Synchronically, all consonant final class suffixes condition a plosive initial consonant on the following adjective. Therefore it is likely to be a regularized new pattern.

The distribution of the two patterns of initial series is linked to the syntactic function of a nominal word in the noun phrase. The following examples show a possible variation of the initial series in the NDI class.

ⁿgaari wodƒeeri ⁿdi	'the red bull'
ᵐbodƒeeri ⁿdi	'the red one (bull)'

As the first example shows, the initial consonant alternation of the adjective **wɔdƒɛ-** 'red' is a continuant when it follows the head noun **ⁿgaari** 'bull'. Thus the series of its initial consonant of the stem is different from the series of the initial consonant that is prenasalized in the noun **ⁿgaari** 'bull', although both combine with a suffix of the same NDI class. The same stem **wɔdƒɛ-** can occur in the same class with an initial continuant or with an initial prenasalized consonant. The position of a word in the noun phrase (linked to its syntactic function) conditions this seemingly arbitrary choice of the different forms of initial consonants. So, the class is not the only determining factor in the choice of the series of the initial consonant. An adjective shows the same patterns of initial consonant alternations as nouns when this adjective occurs as the head of the noun phrase. The pattern of initial consonant alternation is restricted to the basic (F) and plosive (P) series when the adjective functions as a modifier which follows the head of the noun phrase. The alternation patterns differ for head nouns and modifying adjectives with respect to the class markers of the NDI, BA/NGA, KA, NGU, KI, 'DAM, and KOY classes. These classes are characterized by a prenasalized initial consonant in the nouns. The following list shows the different series of the initial consonant of the head noun and the modifier.

		class	series of noun	series of modifier
ⁿgaari sellu^{n}di	'healthy bull'	NDI	(N)	(F)
ⁿgɛsa yɔɔrba	'dry field'	BA	(N)	(F)
laana ranɛɛwa	'white boat'	KA	(N)	(F)
puccu wootu	'one horse'	NGU	(N)	(F)
lekki selluki	'healthy tree'	KI	(N)	(F)

The nouns in these classes have a prenasalized initial consonant and the adjectives have an initial consonant from the basic series when the adjective occurs as a modifier following the noun. The initial prenasalized consonant is used when the adjectives stand independently (i.e. as the head noun) initially in a noun phrase.

		class	series of adjective which is head noun
cellu^{n}di	'the healthy one'	NDI	(N)
ⁿjɔɔrba	'the dry one'	BA	(N)
ⁿdanɛɛwa	'the white one'	KA	(N)
ⁿgootu	'the one'	NGU	(N)
celluki	'the healthy one'	KI	(N)

The initial continuant consonant of the basic series (F) only appears in these classes when the adjective is functioning as a modifier following the head noun. The prenasalized series (N) occurs on the adjective combining with one of these classes when the adjective is a head noun.

Adjectives in the 'DAM and KOY classes occur both with an initial plosive consonant (P) and with an initial prenasalized consonant (N). The distribution of the two forms also appears to be syntactically conditioned. When the word is used as an adjective which modifies a preceding noun, the plosive initial form of the consonant is preferred. When the word is used independently as a noun phrase, only the initial prenasalized consonant of the stem is accepted.

kulloy bunewoy	'brown small things'
ᵐbunewoy	'brown small ones'
kulloy danewoy	'white small things'
ⁿdanewoy	'white small ones'
ⁿdiyam gɔɗɗam	'other water'
ⁿdiyam jaraaɗam	'the water that has been drunk'
ⁿdanɛjam	'white one (liquid)'

This alternative initial consonant series is described as a fluctuation because sometimes the independent series is also accepted in the modifier series. The sequence **kulloy ᵐbunewoy** 'small brown things' is also acceptable.

The patterns of the initial consonant alternation in participles is identical to that of adjectives. The basic (F) and plosive (P) series appear when a participle functions as a modifier

following a head noun. All three series appear when the participle is the head of a noun phrase.

Consonant alternation does not take place in the formation of the verbal nouns, e.g. the infinitive and the agentive adjective. The stems of these nouns always appear with a consonant from the basic series. The following examples are infinitives, verbal nouns, and agentive nominals formed with the stems **dɔnn-** 'drive', **gɔll-** 'work', and **wall-** 'help'.

NDE class (F)		'O class (P)	
infinitive		agentive	
donnudɛ	'to drive'	**dɔnnɔɔwɔ**	'driver' (driving person)
golludɛ	'to work'	**gɔllɔɔwɔ**	'worker' (working person)
walludɛ	'to help'	**wallɔɔwɔ**	'helper' (helping person)

NGOL class (P)		NDI class (N)	
verbal noun		agentive	
donnugol	'driving'	**donnoori**	'driving (bull)'
gollugol	'working'	**golloori**	'working (bull)'
wallugol	'helping'	**walloori**	'helping (bull)'

The agentive adjective derivation is very productive. The initial consonant takes the form it has in its "basic" verb stem form. The agent noun formed with the morpheme **-ɔɔ** is followed by a suffix from grade B, e.g. **-wɔ** in the 'O class. The noun has ʔɔ as its concord, it belongs to the 'O class, e.g. in **wallɔɔwɔ** 'helper, someone who is helping'. Normally this class suffix conditions an initial plosive, but not in the productive derivation of agentive adjectives.

3.1.4 INITIAL CONSONANT ALTERNATION IN VERB FORMS

The stem initial consonant alternation of verb forms is conditioned by two factors: the number of the subject, and the presence of a pronominal subject affix. Only the basic series and the prenasalized series occur in verb forms. The series of the alternating consonants that occur stem initially in the verb forms are schematically given below.

	SV order	V-SPro order
singular subject	(F)	(N)
plural subject	(N)	(N)

The initial consonant of the verb stem is the consonant that occurs in the basic form when the subject is singular and when it precedes the verb. The initial consonant of the verb form is prenasalized when the subject is plural, or when a pronominal subject affix follows the verb. The following examples show the correlation of singular/plural subject and inversion with the series of the verb initial consonant.

	SV-order	V-SPro	
S = sg.	**war**	—	'come!'
	mi warii	**ⁿgar-mi**	'I have come'
	ʔa warii	**ⁿgar-ɗaa**	'you have come'
	(mɔ) warii	—	'he/she/it has come'
	N **warii**	—	'N has come'
S = pl.	—	**ⁿgar-ɛɛ**	'come!' (pl.)
	min ⁿgarii	—	'we excl. have come'
	ʔɛn ⁿgarii	**ⁿgar-ɗɛn**	'we incl. have come'
	ʔɔn ⁿgarii	**ⁿgar-ɗɔn**	'you (pl.) have come'
	ɓɛ ⁿgarii	—	'they have come'
	N+N **ⁿgarii**	—	'N+N have come'

The stem with the consonant from the basic series also appears in the infinitive. The infinitive is a verbal noun formed with the NDE class suffix. The initial series of all nouns combining with the NDE class suffix is the basic series. A number of verbs have a plosive consonant as the underlying stem initial consonant. There are also some verb stems with a prenasalized consonant in the basic series. The infinitive takes its initial consonant from the basic series. The examples below show all possible consonants that can occur in the basic series in Maasina.

continuant initial basic form:

waɗudɛ	'to do'	
yiidɛ	'to see'	
rɛwdɛ	'to follow'	
fijudɛ	'to play'	
sɛllaadɛ	'to be healthy, whole'	
haaldɛ	'to speak'	
etc.		

plosive initial basic form:

bonudɛ	'to be bad'	
boogudɛ	'to paint indigo'	< **boogu** 'indigo' Bam.
jɔgaadɛ	'to have, hold'	
gollude	'to work'	< **gɔllɛ** 'work' Son.
etc.		

prenasalized initial basic form:

ⁿdaardɛ	'to look at'
ⁿdaartudɛ	'to look at, to look for'
ᵐboopudɛ, ᵐboofudɛ	'to err, to make a mistake'

However, basic forms with a prenasalized initial consonant are rare. The verb **ⁿdaardɛ** has an initial [l] in other dialects (e.g. Ringimaaji). The alternation **l** : **d** : **ⁿd** is also not common. Possibly the [**ⁿd**] is taken as the basic form to eliminate this exceptional alternation pattern. The dialectal comparison between Maasina and Ringimaaji shows the exceptional initial consonant alternation in the verbs **ⁿdaarudɛ** [M] and **laarugɔ** [Rm] 'to look (for)'.

Maasina:	**mi ⁿdaarii**	'I've been looking'
	ɓɛ ⁿdaarii	'they have been looking'
Ringimaaji:	**mi laari**	'I've been looking'
	ɓɛ ⁿdaarii	'they have been looking'

The verb **ᵐboofudɛ**, also **ᵐboopudɛ** and **woofudɛ** 'be mistaken', sometimes shows a prenasalized initial consonant in the basic series (Fagerberg 1984:95). The consultants from the centre of Maasina use the regular alternation pattern **w : b : ᵐb**. The following examples show the different alternation patterns of the verb **woofudɛ**, **ᵐboofudɛ**, **ᵐboopudɛ** 'to be mistaken' which all occur in Maasina.

w : b : ᵐb:		**ᵐb:**	
woofudɛ	'to make a mistake, to err'	**ᵐboofudɛ**	'to make a mistake, to err'
mi woofii	'I made a mistake'	**mi ᵐboofii**	'I made a mistake'
ɓɛ ᵐboofii	'they made a mistake'	**ᵐboopudɛ**	'to make a mistake, to err'
mi woofu	'I really made a mistake'	**mi ᵐboopii**	'I made a mistake'

For speakers who use the regular **w : b : ᵐb** pattern with [w] in the basic series, the underlying initial consonant is [w]. For speakers who use an initial prenasalized consonant in the infinitive and in the verb form preceded by a singular subject, the underlying initial consonant of this verb stem is prenasalized. The hypothesis is that the development of the prenasalized consonant as the underlying initial consonant is a late innovation. This view is partly supported by the fact that speakers that have the underlying initial prenasalized consonant in verb forms, also use certain nominal derivations from the same stem with the regular alternation pattern **w : b : ᵐb**. These are the following nouns which are derived from the verb stem **wɔɔf**-'to be mistaken'.

wɔɔfanⁿdɛ	'mistake'
bɔɔfandɛ	'mistakes'

The infinitive in Maasina takes the initial consonant from the basic series. The basic series could be determined by the NDE class, because the suffix **-dɛ** forms the infinitive in Maasina. The Fuuta Tooro dialect also uses the NDE class suffix **-dɛ** to form the infinitive, but in other dialects other class suffixes are used for the infinitive. Infinitives are formed with the NGO class suffix **-gɔ** in the Kaceccereere dialect (McIntosh 1984:10-12) and in the Ringimaaji dialect. In Gombe (Arnott 1970a:18) the infinitive is formed with a suffix **-ki** from the KI class. Thus, the infinitive has the following forms in the different dialects:

	'to come'	'to read'		
Ringimaaji, Kaceccere:	**wargɔ**	**jaŋⁿgugɔ**	NGO	(F)
Gombe:	**warki**	**jaŋⁿguki**	KI	(P) in Gombe
Maasina, Tooro:	**wardɛ**	**jaŋⁿgudɛ**	NDE	(F)

All dialects use the basic series for the initial consonant of the infinitive even if the initial consonant belongs to a set of alternating consonants. In Gombe the infinitives begin with the

basic series, while the KI class marker generally co-occurs with the plosive series. Perhaps the basic series occurs in the infinitive because the infinitive is the basic form of the verb.

3.1.5 INFLUENCE OF THE VOWEL ON INITIAL CONSONANT ALTERNATION

In Maasina the exact consonant alternation of stems with an initial underlying consonant [**w**] or [**y**] cannot be predicted by the rules given in 3.1.1 alone. The following alternations with [**w**] and [**y**] occur in Maasina:

(F)	**w**	**w**	**y**	**y**
	|	|	|	|
(P)	**b**	**g**	**g**	**j**
	|	|	|	|
(N)	**^{m}b**	**^{n}g**	**^{n}g**	**^{n}j**

The historical hypothesis for the irregularity in the alternation patterns with the velar stop is discussed in the next section (3.1.6). Here we show that synchronically some paradigm levelling has occurred in the language to regularize the correlation of the basic consonant with the form of the consonant in the plosive (P) and prenasalized (N) series. Paradigm levelling may involve the replacement of an approximant by its plosive form in the basic series. Paradigm levelling occurs frequently in consonant sets alternating with [**w**] and [**y**]. The quality of the following vowel is an important factor in the alternation patterns and the process of paradigm levelling. The following examples show the correlation between the alternation patterns of [**w**] and [**y**] and the vowels that follow these consonants in Maasina.

w : **b** : **^{m}b** before all vowels:

i	**wippɔ / bippɛ**	'wing'
e	**wee^{n}du / beeli**	'pond'
ɛ	**wɛccɔ / bɛccɛ**	'breast, chest'
a	**waadɛrɛ / baadɛ**	'raindrop'
ɔ	**wɔjɛrɛ / bɔjɛ**	'hare'
o	**wowru / boɓi**	'mortar'
u	**wuugaa^{n}du / buugaali**	'dove'

w : **g** : **^{n}g** before [–front] vowels:

a	**waɓɓu^{n}gɔ / gaɓɓulɛ**	'cheek'
ɔ	**wɔɔmrɛ / gɔɔɓɛ**	'swallow, gulp'
o	**wooɗu^{n}dɛ / gooɗuɗɛ**	'beautiful' (adj.)
u	**wuddu / gulli**	'navel'

y : **g** : **^{n}g** before [+front] vowels:

i	**yitɛrɛ / gitɛ**	'eye'
ɛ	**yɛldɛ / gɛlɛ**	'space between teeth'
e	**yeddudɛ; geddel ʔalla**	'to contradict'; 'salamander'

y : j : ⁿj before all vowels:

i	**yimrɛ / jimɛ**	'religious song'
e	**yeeⁿdu / jeeli**	'ant-eater'
ɛ	**yɛɛwtɛrɛ / jɛɛwtɛ**	'joke'
a	**yanaaⁿdɛ / janaalɛ**	'tomb'
ɔ	**yɔntɛrɛ / jɔntɛ**	'week'
o	**yoɓudɛ; ⁿjoɓdi**	'to pay; wages'
u	**yurmɛɛⁿdɛ / jurmɛɛlɛ**	'compassion'

The regular alternations of the labio-velar approximant with the labial stops **w : b : ᵐb**, and the regular alternation of the palatal approximant with the palatal stops **y : j : ⁿj** both occur before all possible vowels. The place changing alternation of the labio-velar approximant with the velar stops **w : g : ⁿg** occurs only before vowels that are [-front]. The place changing alternation of the palatal approximant with the velar stops **y : g : ⁿg** occurs only before vowels that are [-front]. The hypothesis is that an historical underlying continuant ***ɣ** has become [y] before [+front] vowels and [w] elsewhere. The proposed split of earlier ***ɣ** into conditioned allophones resulted in two alternation sets **y : g : ⁿg** and **w : g : ⁿg**, overlapping with the existing sets **w : b : ᵐb** and **y : j : ⁿj**.

The obstruents occurring in the alternation set **y : g : ⁿg** have in most cases been further changed under the influence of a following [+front] vowel and have become [j] and [ⁿj]. Cognate forms with [g] and [ⁿg] remain in (older) nominal derivations.

y : g : ⁿg —> **y : j : ⁿj** / before [+front] vowels

This replacement has not taken place everywhere in the lexicon, that is why examples of both alternation sets **y : g : ⁿg** and **y : j : ⁿj** can be found before a [+front] vowel within derivations from the same stem.

yiɗ-	'love, like, want'
ʔɔmɔ yiɗi	'he loves'
ʔɛɓɛ ⁿjiɗi	'they love'
jilli	'love, desire'
giɗɔ / yiɓɓɛ	'friend, lover'
giɗaaɗɔ	'beloved one' (name)
giɗiraaɗɔ / giɗiraaɓɛ	'friend, companion'
yɛdd-	'contradict'
ɓɛ ⁿjeddii	'they have contradicted'
jeddi	'contradictions'
geddel ʔalla	'salamander' (lit.: "little contradiction of God")

The distribution between the overlapping alternation sets **w : g : ⁿg** and **w : b : ᵐb** is gradually becoming complementary.

w : g : ⁿg —> **w : b : ᵐb** / before [-front] vowels

The alternation pattern **w : g : ⁿg** is replaced by the pattern **w : b : ᵐb** before [-front] vowels. The change has occurred more often in verbs, it has not affected all nouns.

wutaaⁿdu	'head of millet'
butaali also **guttaali**	'heads of millet'
woowudɛ	'to be used to'
ɓɛ ᵐboowii	'they are used to'
ᵐbɔɔwka also **ⁿgɔɔwka**	'habit'
wɔf-	'bark'
ɗi ᵐbofii	'they have barked'
wɔfaaⁿgɔ	'barking'
gɔfaali	'barkings'
wula	'be hot'
ɗi ⁿgula	'they are hot'
ᵐbuleefi	'heat' (Maasina periphery)
ⁿguleefi	'heat' (centre and periphery)
wooɓudɛ	'take a draught'
ɓɛ ᵐbooɓii	'they took a draught'
ɓɛ ⁿgooɓii	'they took a draught'
wɔɔmrɛ	'draught'
gɔɔɓɛ also **bɔɔɓɛ**	'draughts' (Zoubko 1980:517)
wɔttaadɛ	'to lunch'
ɓɛ ⁿgottikɛ	'they lunched'
bɔttaari	'lunch'
wooɗudɛ	'be good, beautiful'
ʔɛɓɛ ⁿgooɗi	'they are good, beautiful'
booɗum	'sth. good, beautiful'

The replacement of the consonant alternation **w : b : ᵐb** with **w : g : ⁿg** is a late innovation. It has not spread through the whole lexicon. Therefore some stems alternate with both labial and velar stops. The alternation sets with a glide in the basic series have sometimes been further simplified, the voiced plosive now occurring in both the basic and the plosive series.

y : g : ⁿg	—>	**g : g : ⁿg**	**giɗiraaɗɔ / giɗiraaɓɛ** 'friend, companion'
w : g : ⁿg	—>	**g : g : ⁿg**	
w : b : ᵐb	—>	**b : b : ᵐb**	**bappaaɲɔ / bappayɓɛ, wappayɓɛ** 'paternal uncle'
y : j : ⁿj	—>	**j : j : ⁿj**	

Evidence for these changes comes mainly from a comparison of dialects.

3.1.6 DIALECT COMPARISON OF ALTERNATIONS WITH [w] AND [y]

Phonological patterns of stem initial alternating consonants are compared in the dialects of Maasina, Fuuta Tooro, and of the Ringimaaji dialect (Mbororo) in Cameroon. Special attention is paid to the comparison of the irregular alternations **w : g : ⁿg** and **y : g : ⁿg** in Maasina.

It is disputable whether such a diachronic analysis can be used for a synchronic description of the stem-initial consonant alternations. Can distinctions in one dialect be used for the description of another dialect where this distinction is lost? Before answering this question with a categorical no, one must bear in mind that mutual intelligibility exists between speakers of these dialects. The passive knowledge of Fulfulde speakers therefore is clearly greater than the active knowledge. Surely diachrony can explain how the system in a particular dialect came about historically. Diachrony can explain synchrony.

Systems of consonant alternations are very common in Atlantic languages (Doneux 1975:118-119). Fulfulde has only a restricted number of alternating consonants compared to languages like Tanda, Basari, Bedik, Konyagi, Bafiada, and others (Sapir 1971:67-68). Although the system of consonant alternation probably goes back to the stage of proto-Atlantic, the precise alternations keep changing and examples of reanalysis can be found. The alternations with a velar stop are thought to be reflexes of the alternation ***ɣ : g : ⁿg** that has been lost in Fulfulde.

Klingenheben (1927:111) postulates the consonant ***ɣ** which alternates with velar stops for proto-Fulfulde ("Urful"). He states that ***ɣ** in word initial position has changed under the influence of the following vowel. For the western dialects (Fuuta Tooro and Fuuta Jallon) he describes the changes ***ɣa > ʔa**, ***ɣ > y** before [+front] vowels, and ***ɣ > w** before [+back] vowels. In the eastern dialects including Maasina, ***ɣa > wa** instead of ***ɣa > ʔa**.

A comparison of the alternations in the different dialects shows the distribution described by Klingenheben. In Fuuta Tooro the consonants [g] and [ⁿg] alternate with [y], with [w] and, as Paradis states, with zero. Paradis (1986:172-175) inserts a glottal stop before vowel initial words with an automatic rule. Therefore the zero will be compared with the initial glottal stop in Maasina. The following nominal paradigms show alternations with a velar stop in Fuuta Tooro (Paradis 1986:69-70, 331-405).

ʔ : g : ⁿg before [+low] vowels:

abbere	'seed'	**gabbe**	'seeds'
aɓɓugo	'cheek'	**gaɓɓule**	'cheeks'
asde	'to dig'	**ⁿgaska**	'hole'
mi arii	'I have come'	**ɓe ⁿgarii**	'they have come'

w : g : ⁿg before [-front] vowels:

worɓe	'men'	**gorko**	'man'
wuyɓe	'thieves'	**gujjo**	'thief'
wurɔ	'village'	**gure**	'villages'

y : g : ⁿg before [+front] vowels:

yenaaⁿde	'tomb'	**genaale**	'cemetery'
yimre	'poem'	**gime**	'poems'

However, in Pulaar (Fuuta Tooro) alternations involving the velar stops **g** : **ⁿg** are complicated . In Fuuta Tooro the ambiguity of [w] alternating with both labial and velar stops and the ambiguity of [y] alternating with both palatal and velar stops is solved by paradigm levelling. The alternations **w** : **g** : **ⁿg** and **y** : **g** : **ⁿg** are sometimes replaced with the alternation **ʔ** : **g** : **ⁿg**. In some nouns the alternation **ʔ** : **g** : **ⁿg** is replaced with a non alternating glottal stop [ʔ]. Thus the alternation pattern **ʔ** : **g** : **ⁿg** has become exceptional in Fuuta Tooro.

ʔ : **g** : **ⁿg** before all vowels in Pulaar:

abbere	'seed'	**gabbe**	'seeds'
islaŋⁿgo	'sneeze'	**gislaali**	'sneezes'
omᵐboode	'envelope'	**gomᵐboodɗe**	'envelopes'
uumaŋⁿgo	'lamentation'	**guumaali, uumaali**	'lamentations'
uuwre	'wound'	**guube, uube**	'wounds'

The alternation **ʔ** : **g** : **ⁿg** is more frequent in Pulaar, but in Maasina it is only found in some derivations from the stem **ʔas-** 'to dig'.

ʔ : **g** : **ⁿg** before [+low] vowels in Maasina:

mi ʔasii	'I have dug'	**ɓɛ ʔasii**	'they have dug'
ʔasirgal	'spade'	**ʔasirɗɛ**	'spades'
ⁿgayka	'hole'	**ⁿgayɗɛ**	'holes'
ⁿgaykaarɛ	'hole'	**ⁿgaykaajɛ**	'holes'
gasol	'furrow'	**gasi**	'furrows'

The word **ʔasirgal** 'spade' which literally means 'thing/stick to dig with' uses the verbal stem with a normal non-alternating glottal stop stem initially. The word **ⁿgaykaarɛ** 'hole' has taken the form **ⁿgayka** as its stem, its initial prenasalized consonant does not alternate. It is only through a comparison of the verb stem **ʔas-** with the words **ⁿgayka** 'hole' and **gasol** 'furrow' that the alternation pattern **ʔ** : **g** : **ⁿg** can be retrieved.

In the dialect of Ringimaaji the pattern **ʔ** : **g** : **ⁿg** of the verb 'to dig' has been replaced with the regular alternation **w** : **g** : **ⁿg** in the verb and in its derived nouns. Dialect comparison shows the different types of paradigm levelling involving this stem.

Tooro	Maasina	Ringimaaji	
asde	**ʔasudɛ**	**wasugɔ**	'to dig'
ⁿgaska	**ⁿgaykaarɛ**	**ⁿgaska**	'hole'
gasɗe	**ⁿgaykaajɛ**	**gahɛɗɛ**	'holes'

The dialect comparison above shows that the isogloss indicating the occurrence of the alternation **ʔ** : **g** : **ⁿg** does not clearly divide Fulfulde into eastern and western dialects. Surely the occurrence of only one paradigm with the alternation **ʔ** : **g** : **ⁿg** in Maasina is not sufficient to classify this dialect with Fuuta Tooro where this alternation occurs much more frequently.

By comparing the dialects of Fuuta Tooro, Maasina, and Ringimaaji, the paradigm levelling replacing **y** : **g** : **ⁿg** with **y** : **j** : **ⁿj** can be shown in Fuuta Tooro and Maasina. The alternation set **y** : **g** : **ⁿg**, occurring only before the vowels [e] and [i] has undergone a

palatalization rule resulting in the alternation set **y** : **j** : ^{n}**j**. The result is that [**y**] always alternates with **j** : ^{n}**j** before [+front] vowels and that the alternation set **y** : **g** : ^{n}**g** gets lost. As noted earlier, some nouns in Maasina still show the older forms **y** : **g** : ^{n}**g**, but only the alternation set **y** : **j** : ^{n}**j** occurs in verbs. The same is true for the dialect of Fuuta Tooro. In the Ringimaaji dialect this paradigm levelling does not occur. The following dialect comparison shows the paradigm levelling of the initial consonant alternation whereby **y** : **g** : ^{n}**g** is replaced with **y** : **j** : ^{n}**j** in Fuuta Tooro and Maasina.

Fuuta Tooro	Maasina	Ringimaaji	
yim- / ^{n}jim-	**yim- / ^{n}jim-**	**yim- / ^{n}gim-**	'to sing'
jimol	**jimol / jimi**	**gimol / gimi**	'song'
yimre / jime	**yimre / gime**		'poem'
yitere / gite	**yitɛrɛ / gitɛ**	**yitɛrɛ / gitɛ**	'eye'
gidɗɔ / yidɗɓɛ	**gidɗɔ / yiɓɓɛ**	**gidɗɔ / yiɓɓɛ**	'friend, lover'
yiɗ- / ^{n}jiɗ-	**yiɗ- / ^{n}jiɗ-**	**yiɗ- / ^{n}giɗ-**	'to love'
yenaande	**yanaa^{n}de**		'tomb'
genaale			'cemetery'
jenaale	**janaale**		'cemetery'
yɛldɛ / jɛlɗɛ	**yɛldɛ / gɛlɛ**		'space between teeth'
yɛɛwt- / ^{n}jɛɛwt-	**yɛɛwt- / ^{n}jɛɛwt-**	**yɛɛwt- / ^{n}gɛɛwt-**	'to chat'
yɛɛsɔ / jɛɛsɛ	**yɛɛsɔ / yeesooji**	**yɛɛsɔ / gɛɛsɛ**	'face'
	jɛɛsal / jɛɛsɛ		'big face'

Some, especially common, words like **yitɛrɛ/gitɛ** remain unchanged in all dialects. In some words the alternation **y** : **g** : ^{n}**g** is replaced with **y** : **j** : ^{n}**j** only in Fuuta Tooro, such as **jimre/jime** 'poem' and **yɛldɛ/jɛlɗɛ** 'space between teeth'. If the paradigm levelling occurs in Maasina, it occurs also in Fuuta Tooro. The conclusion is that the palatalization of the velar stops in the alternation **y** : **g** : ^{n}**g** before [+front] vowels occurred first in Fuuta Tooro and it spread later to Maasina. The Ringimaaji dialect has not been affected by this process. The dialect of the Ringimaaji shows another type of paradigm levelling which also provides evidence for the postulation of the loss of the alternation set ***ɣ** : **g** : ^{n}**g**. In Ringimaaji the alternation pattern ***ɣ** : **g** : ^{n}**g** has become **y** : **g** : ^{n}**g** and sometimes **h** : **g** : **g** before [+front] vowels, and **w** : **g** : ^{n}**g** before [+round +back] and [+low] vowels.

w : g : ⁿg before [-front] vowels:

wasugɔ	'to dig'	**ⁿgaska**	'hole'
mi wasi	'I have dug'	**ɓɛ ⁿgasi**	'they have dug'
wawru	'well'	**gaawi**	'wells'
mi wari	'I have come'	**ɓɛ ⁿgari**	'they have come'
ʔemi waɲi	'I hate'	**ʔɛɓɛ ⁿgaɲi**	'they hate'
wɔllɔ	'cheek'	**gɔllɛ**	'cheeks'
wulugɔ	'to be hot'	**ʔɛɓɛ ⁿguli**	'they are hot'
wonⁿdugɔ	'be together'	**ɓɛ ⁿgonⁿdi**	'they were together
mi wuɟji	'I have stolen	**ɓɛ ⁿguɟji**	'they have stolen'

y : g : ⁿg before [+front] vowels:

yɛɛsɔ	'face'	**gɛɛsɛ**	'faces'
yitɛrɛ	'eye'	**gitɛ**	'eyes'
yiɗugɔ	'to want'	**ʔɛɓɛ ⁿgiɗi**	'they want'

h : g : ⁿg sometimes before [+front] vowels:

hiitɛ	'fire'	**giitɛ**	'fires'
himɓɛ	'people'	**gimɗɔ**	'person'

In Ringimaaji the split of the historical consonant *ɣ which led to the overlap of **w : g : ⁿg** with the existing alternations set **w : ɓ : ᵐɓ** resulted in different forms of paradigm levelling.

w : ɓ : ᵐɓ —> β : ɓ : ᵐɓ

The alternation set **w : ɓ : ᵐɓ** is replaced with the set **β : ɓ : ᵐɓ** in order to regularize the correlation between the consonant of the basic series and its form in the plosive and prenasalized variant derived from the basic consonant [w].

When the words with **w : ɓ : ᵐɓ** and **ɥ : ɓ : ᵐɓ** in Maasina and Fuuta Tooro are compared with cognate words in Ringimaaji, their distribution appears to be different from the distribution of the alternating forms **w : ɓ : ᵐɓ** and **β : ɓ : ᵐɓ** in the Ringimaaji dialect. In Fuuta Tooro and in Maasina the [ɥ] is an allophone of [w], phonologically conditioned by the spread of the feature [+front] of the following vowel. In Ringimaaji [β] is a consonant that regularly alternates with **ɓ : ᵐɓ**. The consonant [β] occurs before all vowels, the segment [w] only occurs before [-front] vowels. The comparison in the following table shows the different distributions of [ɥ] in Maasina and [β] in Ringimaaji.

Maasina	Ringimaaji	
ɥ : b : ᵐb before [+front] vowels:	**β : b : ᵐb** before all vowels:	
ɥiya / ᵐbiya	**βiʔa / ᵐbiʔa**	'say'
ɥinⁿda / ᵐbinⁿda	**βinⁿda / ᵐbinⁿda**	'write'
ɥɛla / ᵐbɛla	**βɛla / ᵐbɛla**	'be nice'
ɥeeⁿdu / beeli	**βeeⁿdu / beeli**	'lake'
	βutaaⁿdu / butaali	'maize'
w : b : ᵐb before [-front] vowels:	**βumɓɛ / bumɗɔ**	'blind' (pl./sg.)
wutaaⁿdu / butaali	**βoβru / bobi**	'mortar'
wumɓɛ / bumɗɔ	**βɔjɛrɛ / bɔjɛ**	'hare'
wowru / boɓi	**βaɗa / ᵐbaɗa**	'mount a horse'
wɔjɛrɛ / bɔjɛ	**βaata / ᵐbaata**	'to die (animals)'
waɗɗa / ᵐbaɗɗa		
waata / ᵐbaata	**w : b : ᵐb** sometimes before [a]	
wara / ᵐbara	**wara / ᵐbara**	'to kill'
walla / ᵐballa	**walla / ᵐballa**	'to help'

From the cognates given above it is clear that the consonant [β] in Ringimaaji is not conditioned by a following [+front] vowel since [β] does occur before [-front] vowels also. The paradigm levelling which occurred in the dialect of Ringimaaji and which should explain this distribution is the replacement of the alternation **w : b : ᵐb** by **β : b : ᵐb**. This replacement made the set **w : g : ⁿg** the regular alternation with the underlying consonant [w] in the basic series, whereas **β : b : ᵐb** is the regular alternation pattern of the basic consonant [β]. This paradigm levelling is also not complete because a few basic words **war-** 'kill' and **wall-** 'help' kept their old forms with an alternation of [w] with a labial stop.

The paradigm levelling replacing the alternation set **w : b : ᵐb** with **w : g : ⁿg** before [+back] vowels in Maasina can be shown by dialect comparison. This paradigm levelling did not occur in Ringimaaji.

Tooro	Maasina	Ringimaaji	
gumɗo	**bumɗɔ**	**bumɗɔ**	'blind person'
wumɓe	**wumɓɛ**	**βumɓɛ**	pl.
wutaaⁿdu	**wutaaⁿdu**	**βutaaⁿdu**	'spadix, cob, ear'
butaali	**butaali,**	**butaali**	pl.
	guttaali		pl.
	wul- / ⁿgul-	**wul- / ⁿgul-**	'to be hot'
	ᵐbuleefi		'heat' (Haayre)
ⁿguleeki	**ⁿguleefi**		'heat' (Maasina, Gimmballa)
	wɔɔɗ- / ⁿgɔɔɗ-	**βɔɔɗ- / ᵐbɔɔɗ-**	'be good, beautiful'
	booɗum		'sth. good, beautiful'
	ᵐboɗeefi		'goodness, beauty'

	wɔf- / ᵐbɔf-	'to bark'
wofanⁿgo	**wɔfaaⁿgɔ**	'barking'
gofaali	**gɔfaali**	pl.
	wɔɔw- / ᵐbɔɔw-	'to be used to'
	ᵐbɔɔwka, ⁿgɔɔwka	'habit'
goweⁿderal		'familiarity, mutual habit'

The replacement of **w** : **b** : ᵐ**b** before [+back] vowels with **w** : **g** : ⁿ**g** occurs both in Maasina and in Fuuta Tooro. Further comparison is needed to see where this innovative paradigm levelling started. What is clear is that the actual changes that occur are there to eradicate the ambiguity of the alternation of the underlying consonant [**w**] with either velar or labial stops.

The alternation of the reflexes of this underlying initial continuant is not entirely predictable from the vowels that follow it. This is what Paradis (1986:64-81) tries to do, she predicts the precise alternation of [**w**], [**y**] and Ø (=[ʔ]) from the following vowel.. There still is some (historical) morphological information necessary to explain the alternation patterns of some frequent words. The hypothesis is that part of the alternations of [**w**] with both labial and velar stops and of the alternations of [**y**] with both palatal and velar stops are unpredictable because of the following historical rules applying to *ɣ.

*ɣ > **w** / __ V [+back]

*ɣ > **y** / __ V [+front]

The ambiguity involving alternations with the velar stop is being resolved by different types of paradigm levelling in the different dialects. Each of these dialects has some additional different phonological changes involving *ɣ.

Fuuta Tooro	*ɣ > ʔ / __ V [+low]
Maasina	*ɣ > **w** / __ V [+low] *ɣ > ʔ / __ V [+low] (one example)
Ringimaaji	*ɣ > **w** / __ V [+low] *ɣ > **h** / __ V [+front] (few examples)

Dialect comparison shows that the irregular place changing alternations always involve alternations with the velar stops **g** : ⁿ**g**. The hypothesis is that these irregular alternations are reflexes of a proto-Fulfulde alternation *ɣ : **g** : ⁿ**g** that has been lost, as postulated by Klingenheben (1927:150). Different dialects show different strategies of paradigm levelling to regularize the consonant alternations.

3.2 STEM FINAL CONSONANT ALTERNATIONS

Stem final consonant alternation is not frequent. Most stems, combining with verbal or nominal affixes, do not change their last consonant. Stem final consonant alternation occurs especially in a few high frequency words. In many words the phonological environment conditioning the stem final consonant change is present in the surface form. This sound change can be the result of assimilation of the final consonant of the stem to the initial consonant of the suffix. Its adjacency to nasal consonants can lead to nasal assimilation. The adjacency of a nasal to an obstruent can lead to place assimilation. The adjacency of the stem final consonant to high vowels can lead to palatalization. The occurrence of the stem final consonant in syllable final position can lead to a higher sonority. Aside from processes of partial assimilation, the process of total assimilation of the stem final consonant to the suffix initial consonant also does occur.

When assimilation occurs, it is often difficult to find the morpheme boundary between the stem and the suffix. When total assimilation has occurred, it is not easy to distinguish between the conditioning environment and the underlying form of the two consonants that have merged. Total merger occurs frequently when a stem precedes one of the class suffixes with an initial glottal stop [ʔ]. Examples of total merger have been found in nouns combining with the class suffixes of grade A in the 'O class, in the 'DE class and in the 'DI class. The underlying form of the grade A suffixes in these classes are ***ʔɔ**, ***ʔɛ** and ***ʔi** respectively. The assimilation of a stem final consonant to a glottal stop has already been noted by Klingenheben (1941:20-38), who described these changes in his hamza assimilation rules ("Hamza-Assimilationsgesetze"). The type of consonant change occurring in examples where the stem final consonant change is the result of total merger show much similarity with the type of alternation that occurs word initially. These examples of assimilation to a suffix initial glottal stop [ʔ] are discussed in section 3.2.1. The phonological rules describing other stem final consonant changes are discussed in sections 3.2.2-6. Explanations are given as far as it is possible to do so. This is sometimes difficult, especially when a certain stem final consonant alternation is found in only one nominal paradigm.

3.2.1 KLINGENHEBEN'S HAMZA ASSIMILATION RULES

Klingenheben (1941:20-38) describes the hamza assimilation rules as an assimilation of the final consonant of the stem to the initial glottal stop of the suffix. Klingenheben derives the name of the rule from the hamza, the name of the orthographic sign in the Arabic script that is used for the glottal stop. This phonological change resulting from the merger of a stem final consonant with a glottal stop (P-rule 1) can be deduced when corresponding singular and plural forms are compared. There are a few nouns where the merger only leads to lengthening of the stem final consonant.

sg.	***ful**	+	***ʔɔ**	>	**pullɔ**				pl.	**fulɓɛ**	'Fulbe person'
pl.	***laac**	+	***ʔɛ**	>	***laaccɛ**	>	**laccɛ**		sg.	**laaci**	'tail'

Phonological changes occur when the underlying stem final consonant is [+continuant]:

pl. *lɛf	+	*ʔi	>	**leppi**	sg. **lef-ol**	'woven strip'
pl. *nɔf	+	*ʔi	>	**noppi**	sg. **now-ru**	'ear'
pl. *hɔf	+	*ʔi	>	**koppi**	sg. **how-ru**	'knee'
pl. *fɔw	+	*ʔi	>	**pobbi**	sg. **fow-ru**	'hyena'
pl. *hɔls	+	*ʔɛ	>	**kɔlcɛ**	sg. **hɔls-ɛrɛ**	'hoof'
sg. *law	+	*ʔɔ	>	**labbɔ**	pl. **law-ɓɛ**	'woodworker'
sg. *rɛw	+	*ʔɔ	>	**dɛbbɔ**	pl. **rɛw-ɓɛ**	'woman'
sg. *wuy	+	*ʔɔ	>	**gujjɔ**	pl. **wuy-ɓɛ**	'thief'
pl. *maay	+	*ʔɛ	>	***maajjɛ > maajɛ**	sg. **maay-ɔ**	'river'
pl. *lɛw	+	*ʔi	>	**lebbi**	sg. **lew-ru**	'moon, month'
pl. *saw	+	*ʔi	>	**cabbi**	sg. **saw-ru**	'stick'
pl. *naw	+	*ʔɛ	>	**nabbɛ (nawɛ)**	sg. **naw-rɛ**	'pond, lake'
pl. *ɲiiw	+	*ʔi	>	***ɲiibbi > ɲiibi**	sg. **ɲiiw-a**	'elephant'
pl. *laaw	+	*ʔi	>	***laabbi > laabi**	sg. **laaw-ol**	'road, times'

In the examples **nowru/noppi** 'ears' and **howru/koppi** 'knees', the underlying stem final [**f**] is replaced in syllable final position by the more sonorant [**w**] in Maasina. The merger of an underlying [+continuant] stem final consonant [**f**] with a glottal stop (P-rule 1) results in a [-continuant] long consonant [**pp**], an alternation pattern which is also found to occur stem initially. The same alternations also appear when verb roots combine with the intensive extension, which is marked by the gemination of the stem final consonant which occurs due to its assimilation to an underlying glottal stop [ʔ], as shown in the following intensive verb derivations.

wis-	'sprinkle water'	**wiccudɛ**	'to sprinkle with drops'
ʔuw-	'bury'	**ʔubbudɛ**	'to bury'
yof-, yoof-	'leave, liberate, abandon' (Z:DO)	**yoppudɛ**	'to leave, abandon, let'
hif-	'turn over' (Z:G-A)	**hippudɛ**	'to turn over (recipient)'
daw-dɛ	'to travel'	**dabbudɛ**	'to pass the cold season'
hɛs-	'new'	**heccudɛ**	'to be fresh'
taf-udɛ	'to forge'	**tappudɛ**	'to castrate; beat'
duf-	'crush' (Z:FJ)	**duppudɛ**	'to burn, roast'
heef-	'pluck' (Z)	**heppudɛ**	'to irritate oneself'
wes-	'winnow, shift'	**weccudɛ**	'to change'
tef-	'intervene' (Z)	**teppudɛ**	'to throw (between warp)'
ⁿguy-ka	'theft'	**wujjudɛ**	'to steal'
ɗoy-ru	'cough'	**ɗojjudɛ**	'to cough'
hɔɔs-	'collect; give present' (Z)	**hooccudɛ, hoocudɛ**	'to collect what was lost; to give guest presents'

Alternation patterns similar to those found in initial word position occur in both the nominal and verbal word derivations. Consonant alternation patterns which occur both stem finally and stem initially are listed below.

stem final	stem initial
*f + *ʔ > pp	f : p
*s + *ʔ > c	s : c
*w + *ʔ > bb, b	w : b : ᵐb
*y + *ʔ > jj, j	y : j : ⁿj

The similarity between the type of consonant alternation of a single continuant and a geminate plosive has led to the hypothesis that the initial consonant alternation is the result of the total merger of the underlying consonant with a glottal stop.

The stems which contain a long vowel show an alternation of a single [+continuant] with a single [-continuant] when they undergo hamza assimilation. The hypothesis is that a merger with an underlying glottal stop [ʔ] has lead to gemination, i.e. lengthening of the merged consonant. This geminate long consonant is shortened if it appears after a long vowel. Shortening of the long consonant occurs to prevent the marginal CVVC syllable structure in the plural of the words **maayɔ/maajɛ** 'river', **ɲiiwa/ɲiibi** 'elephant', and **laawol/laabi** 'road'.

Some of the stems that undergo hamza assimilation also have an alternative plural formation which does nots show this stem final consonant alternation.

		old plural	new plural
maayɔ	'river'	**maajɛ**	**maayooji**
leesɔ	'bed'	**lɛɛcɛ**	**lɛɛsɛ, leesooji**
laawol	'road'	**laabi**	**laawi**

The alternative plural for the form **maajɛ** 'rivers' is **maayooji** 'rivers' . There is an alternative plural **laawi** 'roads' for the word **laabi** 'roads'. Its singular form **laawol** 'road' also means 'time, occurrence'. A semantic distinction has developed between these two plural formations. The plural form assimilating to the initial consonant of the underlying suffix *ʔi is now used for the literal meaning of the singular **laawol/laabi** 'roads', while the regularized plural is used to form the plural of the figurative meaning **laawol/laawi** 'times, occurrences'.

What is remarkable is the fact that most nouns which show hamza assimilation occur in the Swadesh basic word list (of 200 words). It seems that the hamza assimilation rule is no longer productive. In regular word formation a glottal stop occurring in the underlying structure is simply deleted without leaving any trace. The postulated historical phonological rule of hamza assimilation is a retention that survived only in some frequently used basic words.

The existence of alternative plurals above indicates that the nouns formed with a suffix with an initial glottal stop are replacing the formation with hamza assimilation by the more regular formation showing no stem final alternation as described above due to the simple deletion of the underlying suffix initial glottal stop. The alternative plurals have regularized the plural formation of these words.

3.2.2 ALTERNATION OF LARYNGEALIZED WITH NASAL CONSONANTS

Sometimes a laryngealized labial consonant has become nasal, especially in syllable final position.

kɛm-ɗaa < *hɛɓ + *ɗaa	'have you'
fim-rɛ / piɓ-ɛ	'knot; wedding ceremony in the mosque'
nim-rɛ / niɓ-ɛ	'darkness'
sum-^{n}gɔ / cuɓ-ɛ	'choice'

The stem final alternation [**ɓ**]/[**m**] is proposed to be the result of a phonological change of the stem final consonant [**ɓ**]. The laryngealized bilabial [**ɓ**] cannot occur in syllable final position (if it is not the initial part of a long consonant). It is replaced with a more sonorant labial nasal [**m**] in that position. The alternation [**ɓ**]/[**m**] is also found regularly in other places. The derivation of the following words needs additional explanation because both alternating consonants [**m**] and [**ɓ**] appear in syllable initial position.

julm-ɛrɛ / julɓ-ɛ	'piece of charcoal/charcoal'
tamm-ɛrɛ / taɓɓ-ɛ	'fruit of water lily that grows in mud'

Possibly the consonant [**ɓ**] in these words is the result of the merger of a stem final [**m**] with the initial glottal stop of the plural suffix *^{ʔ}ɛ. The following paradigms show that a stem final laryngealized consonant causes the occurrence of several possible alternations.

lee^{m}bol / leeɓi	'hair, feather'	[Maasina, Gimballa]
leeɓol / leeɓi	'hair, feather'	[Maasina, centre]
lee^{m}buru / leeɓi	'hair, leaf'	[Maasina]
lɛɛmrɛ	'hair'	[Maasina, centre]
lɛɛɓrɛ / lɛɛɓɛ	'hair, fur'	[Diamaré]
leeɓol / leeɓi	'hair'	[Fuuta Jallon, Volta, Eastern Niger]

A more regular alternation would be that the laryngealized labial [**ɓ**] becomes nasal in syllable final position, like in the word **lɛɛmrɛ** 'hair'.

The alternation [^{m}**b**]/[**ɓ**] is more difficult to explain. This alternation of a prenasalized voiced labial plosive which alternates with a laryngealized labial plosive is supposed to be the result of a number of phonological changes and reanalyses. The underlying stem final consonant [**ɓ**] has been replaced with the more sonorant nasal [**m**] in syllable final position. The sequence [**mr**] is ill-formed in derivations like the word **lee^{m}buru** 'hair, leaf'. Perhaps an epenthetic voiced plosive is inserted between a nasal and a liquid consonant. The proposed historical derivation of the different consonant sequences that are attested is the following:

ɓr > mr > ^{m}br > ^{m}bVr

The form **lee^{m}bol** is the result of the reanalysis of the stem in the word **lee^{m}buru** as having a prenasalized final consonant [^{m}**b**]. It is remarkable that all proposed underlying steps of the historical derivation of the alternation [^{m}**b**]/[**ɓ**] can be found in the different cognate forms of

the word 'frog, toad' in the different Fulfulde dialects. This lends some support to the plausibility of the proposed derivation. In most orthographies **mbr** and **ᵐbr** are not distinguished.

faɓru / paaɓi	'frog, toad'	[Aadamaawa] (Taylor 1932:46)
faɓru / paaɓi	'frog, toad'	[Diamaré] (Noye 1989:102)
faɓru	'toad'	[Fuuta Tooro] (Gaden 1913:9)
faɓru / paaɓi	'frog, toad'	[Ringimaaji]
faamru / paabi	'toad'	(Zoubko 1980:157)
famru	'toad'	[Fuuta Tooro] (Gaden 1913:9)
faambru / paaɓi	'toad'	[Maasina?] (Zoubko 1980:156)
famburu	'toad'	[Fuuta Tooro] (Gaden 1913:9)
faaᵐburu / paaɓi	'frog, toad'	[Maasina]
faawru / paaɓi	'toad'	[Volta] (Zoubko 1980:156)
faabru / paaɓi	'frog'	[Aadamaawa] (Klingenheben 1963:62)
faabru / paabi	'frog'	[Fuuta Jallon] (CRDTO 1971:156)

The laryngealized labial [**ɓ**] can also alternate with a labial approximant [**w**] in syllable final position. The alternation [**w**]/[**ɓ**] is found in one of the cognate forms derived from the stem **faaɓ-** 'frog, toad', and in a derivation of the stem **wɔɓ-** 'mortar'.

faawru / paaɓi	'toad'	[Volta] (Zoubko 1980:156)
wowru / boɓi	'mortar'	

Perhaps the change **ɓr > wr** instead of the change **ɓr > mr** occurs to avoid the sequence [**mr**] which violates the sonority hierarchy. In productive derivations, [**mr**] is one of the few consonant sequences which violate the sonority hierarchy. An [**m**] should not precede a consonant [**r**] because in a sequence of two different consonants, the first should be less sonorant. The cognate **woɓru/boɓi** 'mortar' in Eastern Niger (Zoubko 1980:513) supports the postulation of an underlying stem final consonant [**ɓ**] in **wowru / boɓi** 'mortar' in Maasina.

The replacement of the feature [+laryngealized] with [+voiced] in syllable final position occurs in the Fulfulde spoken in 'Yola, Nigeria. This has resulted in the form **faabru** 'frog, toad', a form that is found in more Aadamaawa dialects. The dialect comparison gives sufficient evidence to support the claim that the underlying stem final consonant in the stem final alternation [**ᵐb**]/[**ɓ**] is the laryngealized labial [**ɓ**].

The following examples show a stem final consonant alternation of an alveolar laryngealized consonant with a nasal consonant.

kaɗ-ɗɔ / ham-ɓɛ	'who has refused'	< **haɗ-**	'refuse'
kiiŋⁿgal	'which is worn off' (NGAL class)	< **hiiɗ-**	'be worn off'

This alternation is not frequently attested, possibly because the laryngealized [**ɗ**] generally assimilates totally to the adjacent consonant. In the plural form **ham-ɓɛ** 'those who have

refused' the nasal consonant has also assimilated in place to the initial labial consonant of the suffix -**ɓɛ**. The stem final nasal in the adjective **kiiŋⁿgal** 'which is worn off' assimilates to the initial nasal part of the suffix -ⁿ**gal**.

The stem final alternation of the palatal consonants [ɲ]/[ʝ] occurs only in a few stems. The phonological rule appears to make the laryngealized consonants [ɗ] and [ɓ] nasal in syllable final position. This rule would be in competition with the rule that an alveo-palatal laryngealized affricate [ʝ] alternates with an alveo-palatal approximant [y] in syllable final position. Other phonological changes must be assumed to have led to the stem final alternation [ɲ]/[ʝ] in the following words:

hɛɛɲ-ɛrɛ / kɛɛʝ-ɛ	'liver'
ɲuuɲ-u / ɲuuʝ-i	'ant'
jaaɲⁿjɛ / jaaɲʝ-ɛ	'herd consisting of several **cɛfɛ**'
jaaɲⁿjɛ / jaaʝ-ɛ	'place where herds gather'
jaaɲʝ-ɛ	'total of herds'

The alternation [ɲ]/[ʝ] is the result of a merger between the stem final consonant [ɲ] and the initial glottal stop [ʔ] of the plural suffix -ʔ**i**. The derivation of a plural form **kɛɛʝɛ** 'livers' is proposed to be the following:

***hɛɛɲ- + *-ʔɛ > *kɛɛɲ-ʔɛ > *kɛɛʝ-ʝɛ > kɛɛʝɛ**

The geminate consonant that resulted from the assimilation of the stem final [ɲ] and the suffix initial [ʔ] was shortened to prevent the less well-formed syllable CVVC, resulting from the sequence of a long vowel followed by a long consonant.

The given derivation (ʝ < ɲ + ʔ) takes the alveo-palatal nasal [ɲ] as the underlying stem final consonant. The same underlying consonant is proposed for the stem in **ɲiiⁿdɛ/ɲiiʝɛ** 'tooth'. The alternation [ⁿ**d**]/[ʝ] that appears in the surface forms is not a regular alternation. Consonant alternations seldom show a change of place features. The exceptional alternation is the result of several phonological changes in the singular form. The comparison with a cognate singular/plural formation of the same word gives further clues to the derivation of this word.

ɲiiⁿdɛ / ɲiiʝɛ	'tooth' [Maasina]
ɲiire / ɲiiʝe	'tooth' [Fuuta Tooro, Fuuta Jalon]
ɲiiⁿdere / ɲiiʝe	'tooth' [Gombe] (Arnott 1970a:129)

The derivation of the plural form is identical to the plural forms of **kɛɛʝɛ** 'livers' and **jaaʝɛ** 'places where herds gather'.

***hɛɛɲ**	**+ *ʔɛ > *kɛɛʝʝɛ >**	**kɛɛʝɛ**	'livers'
***jaaɲ**	**+ *ʔɛ > *jaaʝʝɛ >**	**jaaʝɛ**	'gathering place'
***ɲiiɲ**	**+ *ʔɛ > *ɲiiʝʝɛ >**	**ɲiiʝɛ**	'teeth'

The singular form would have, as a regular suffix, the vowel initial allomorph **-ɛrɛ** to prevent the occurrence of [**ɲ**] in stem final position. Additional phonological changes can only be explained if a shortening of the word to a disyllabic word has occurred. The shortening of a word to a disyllabic form can be shown in a number of other words, but it is not a productive process applied to all words. The domain of this shortening seems to be words which are used very frequently.

***ɲiiɲ- + -rɛ > *ɲiiɲɛrɛ > *ɲiiɲ-rɛ > *ɲiin-ⁿdɛ > ɲiiⁿdɛ**

The shortening of the underlying form ***ɲiiɲɛrɛ** made the alveo-palatal nasal [**ɲ**] come to be adjacent to the alveolar trill [**r**]. The nasal assimilated in place to the alveolar. The trill changed its feature [+continuant] to [-continuant]. The trill became a plosive alveolar [**d**] because the sonority hierarchy would otherwise be violated. The correct order of segments in the syllable according to their sonority hierarchy determines that a nasal alveolar cannot precede an alveolar trill.

3.2.3 NASAL ASSIMILATION

When the stem final consonant is a nasal, it takes on the place features of the initial consonant of the suffix, e.g it becomes labial before the suffix **-ɓɛ**.

janan-ɔ / janam-ɓɛ	'who belongs elsewhere'		
dɔn-ɗɔ / rɔm-ɓɛ	'heir, heiress'	**rɔn-**	'inherit'
don-u-ɗɔ / ronu-ɓɛ	'heir, heiress'	**rɔn-**	'inherit'
gɔn-ɗɔ / wɔm-ɓɛ	'so. who is at (a place)'	**wɔn-**	'be'
bum-ɗɔ, bun-ɗɔ / wum-ɓɛ	'blind person'	**wum-**	'be blind'
bɔn-ɗɔ / bɔm-ɓɛ	'bad person'	**bɔn-**	'be bad'

Nasals often assimilate in place to the following consonant. The alveolar [**n**] always assimilates in place to the following consonant. The labial [**m**] sometimes assimilates in place to the features of the following consonant. That the nasal consonant [**m**] does not assimilate without exception to the place features of the following consonant can be observed in the forms of the word **bumɗɔ, bunɗɔ** 'blind person'. The nasals {**n, ŋ, ɲ**} can only precede a consonant with identical place features. The (stem final) palatal [**ɲ**] often changes to [**y**].

ɲɛɛɲ-ɔ / ɲɛɛy-ɓɛ	's.o. of the cast of artisans, praise singers'
gaɲ-ɔ / way-ɓɛ, waɲuɓɛ	'enemy'

The alveo-palatal nasal [**ɲ**] does not occur word finally. The phonemic velar [**ŋ**] is rare, it does not occur word finally. Place assimilation of nasals also occurs across word boundaries. A word final vowel nasal sequence is often realized as a nasal vowel.

/kɔsam/	'milk'	**/fiyan/**	'(will) hit'
kɔsã	'milk'	**fiyã**	'(will) hit'
kɔsan nagge	'milk of a cow'	**fiyan ⁿdu**	'(will) hit it'
kɔsam ᵐbɛɛwa	'milk of a goat'	**fiyam mɔ**	'(will) hit him/her/it'
kɔsaŋ ⁿgɛlɔɔba	'milk of a camel'	**fiyaŋ kadiija**	'(will) hit Kadiija'
kɔsaɲ ɲiiwa	'milk of an elephant'	**fiyaɲ ɲaaku**	'(will) hit the bee'

3.2.4 TOTAL ASSIMILATION

A stem final consonant often assimilates totally to the following consonant, e.g. the initial consonant of the suffix **-ɓɛ**.

gɔɗɗɔ / wɔɓɓɛ	'another person/others'	
giɗɔ / yiɓɓɛ	'friend, lover'	< **yiɗ-** 'love'
kɔɗɔ / hɔɓɓɛ	'guest'	< **hɔɗ-** 'settle'
kɔɗɗɔ / hɔɓɓɛ	's.o. who is settled'	< **hɔɗ-** 'settle'

Some of these stems are verbs that end in the consonant [**ɗ**]. The laryngealized alveolar [**ɗ**] assimilates totally to the laryngealized labial [**ɓ**], which accounts for these changes. This phonological rule has to be applied to prevent the ill-formed syllable with an obstruent in syllable final position (that is not the first part of a geminate consonant).

reedu / deeɗi	'belly'
suudu / cuuɗi	'house, room'
ɓɔɔddɛ / ɓɔɔɗɛ	'ball'
ɓɔɔdɛrɛ / ɓɔɔdɛ	'ball'

The stem final consonant alternation [**d**]/[**ɗ**] is the result of the total assimilation of the underlying stem final consonant [**d**] to the initial laryngealized consonant of the plural suffixes **-ɗi** and **-ɗɛ**. The resulting geminate consonant [**ɗɗ**] has been shortened after a long vowel to avoid the less well-formed syllable structure CVVC. The alternative grade A forms **ɓɔɔdɛrɛ/ɓɔɔdɛ** 'ball' show that the voiced alveolar plosive [**d**] is the underlying stem final consonant.

3.2.5 SYLLABLE FINAL CONSONANT ALTERNATION

A number of repair rules prevent ill-formed syllable structures which result from the adjacency of ill-formed consonant sequences in underlying structures. The effect of these rules is a set of stem final consonant alternations, which can however be explained by referring to the syllable structure (see section 4.5). The stem final consonant [**f**] becomes a labio-velar approximant [**w**] in syllable final position. The alveo-palatal [**y**] alternates also with the voiceless alveolar fricative [**s**] that cannot occur in syllable final position. The consonant [**y**] alternates with all alveo-palatal consonants [**j**], [**ɟ**], and [**ɲ**] which cannot occur syllable finally (unless they are the initial part of a geminate consonant).

haw-rɛ / kaf-ɛ	'sheaf, bundle of grass'
sɛw-rɛ / cɛf-ɛ	'herd'
kɛs-ɔ; hɛy-rɛ	'new' ('O class; NDE class)
bɔs-al; ᵐboy-ri	'little bit of porridge; porridge'
baas-udɔ, baay-dɔ / waas-uɓɛ	'have-not, can-not' < **waas-** 'lack'
gujj-ɔ / wuy-ɓɛ	'thief'
jɔmᵐbaaj-ɔ / yɔmᵐbay-ɓɛ	'newly wed'
fuy-rɛ / puj-ɛ	'pimple, spot, ball-shaped piece'
haay-rɛ / kaaj-ɛ	'stone, rock, hill'
bappaaɲ-ɔ / wappay-ɓɛ	'uncle: father's brother'
ɲɛɛɲ-ɔ / ɲɛɛy-ɓɛ	'cast of artisans, praise singers' (younger speakers)
ŋɛɛɲ-ɔ / ŋɛɛy-ɓɛ	'cast of artisans, praise singers' (elder speakers)

3.2.6 EXCEPTIONAL ALTERNATIONS

There are a number of alternations that occur only in one nominal paradigm. Possibly they are remnants of alternation sets which have disappeared, sometimes a phonological conditioning seems traceable.

wiigɛ / bijji	'calf 3 to 4 years, mature heifer'	[g - j]
naggɛ / nay, naʔi	'cow'	[g - ʔ]
capaat-ɔ / safar-ɓɛ	'Mauritanian'	[t - r]
luur-dɛ / duul-ɛ	'cloud'	[r - l]
ⁿgumardi / gumali	'bull without horns'	[r - l]
wumarɛ / gumali	'cow without horns'	[r - l]
moorol / mooli, moolli	'braid, plait'	[r - l]

The examples involving the stem final consonant [g] are also discussed in section 7.2.5.3. The stem final alternation [g]/[j] in the paradigm **wiigɛ/bijji** 'calf of three to four years, mature heifer' is the result of palatalization of the stem final consonant [g] in between two high front vowels. The consonant [g] also alternates with [y] or with the glottal stop [ʔ] in the paradigm **naggɛ/nay, naʔi** 'cow'. The alternation [ʔ]/[g] is also found stem initially, in Fuuta Tooro. The glottal stop is the result of the loss of a continuant velar *ɣ, which no longer occurs in Fulfulde. Historically the stem final consonant of the stem for cow is reconstructed as *ʔ. The glottal stop [ʔ] is deleted in the plural **naʔi** 'cows', the vowel [i] has become consonantal (y) in the plural form **nay** 'cows'. The stem final glottal stop in ***naʔ-** has merged with the initial velar consonant in the noun class suffix ***ɣɛ** which has resulted in a geminate voiced velar consonant [gg] in the singular form **naggɛ** 'cow'.

The alternation **t-r** occurs uniquely in the word **capaat-ɔ/safar-ɓɛ** 'Mauritanian'. The [t] functions in Fulfulde as the only voiceless plosive that does not alternate. Maybe the consonant [t] historically has also been an alternating consonant, possibly with a voiceless alveolar continuant [l̥] that changed to [r] or [l]. Because the only non-alternating continuant in the consonant system is the alveolar voiced lateral, the consonant [l] is the most likely consonant to have once alternated with [t]. The obstruent consonant [t] in syllable final position should alternate with its continuant or sonorant counterpart. This [r] acts sometimes as the sonorant counterpart of [l].

A petrified stem final consonant alternation [r]/[l] can be found in a few nouns derived from the stems ***wum-ar-** 'without horns' and ***mɔɔr-** 'plait'. The morpheme **-ar-** in **wum-ar-** is the pejorative marker. The underlying consonant of these stems is an [r]. The consonant [l] appears at the surface in words where this stem final [r] is in contact with the underlying suffix initial glottal stop which conditions a gemination of the stem final consonant. In this respect the alveolar trill [r] behaves like a [+continuant] and the lateral alveolar [l] behaves like a [-continuant] segment. The appearance of [r] in syllable final position when it alternates with [l] could be related to the difference in the sonority hierarchy of these two consonants. The more sonorant [r] is being allowed in syllable final position here, the less sonorant [l] is not. The different variant forms of these nouns show that reanalysis has taken place in the formation of the words derived from the stem ***wum-ar-** 'without horns'. Synchronically [l] and [r] occur in all possible positions.

wumarɛ / gumali	'cow without horns'	[r - l]
wumalɛ / gumali	'cow without horns'	[l - l]
ⁿgumardi / gumali	'bull without horns'	[r- l]
ⁿgumaldi / gumali	'bull without horns'	[l - l]
ⁿgumardi / gumarɗi	'bull without horns'	[r - r]

The stem in the reanalyzed forms has the same final consonant in both the singular and the plural form. It is remarkable that the choice of a regularized stem ending in [r] results in the plural suffix **-ɗi** in **ⁿgumardi/gumarɗi** 'bull without horns'. This supports the analysis that the verbal noun suffix **-di/-ɗi** of grade C is conditioned by a stem final [r]. Synchronically, both [l] and [r] can occur in syllable final position, in Maasina both [ll] and [rr] can occur as geminate consonants. The stem final consonant alternations of [r] with [l] have contributed to the complicated distribution of the plural suffix form **-li**.

The consonant alternation of an [l] which is replaced with an [r] in syllable final position also does occur in the paradigm of the word **luurdɛ/duulɛ** 'cloud'.

luur-dɛ / duul-ɛ	'cloud' [Maasina]
ruul-dɛrɛ / duul-ɛ	'cloud' [Seeno]

The irregular suffix form **-dɛrɛ**, probably the result of a double suffix of the NDE class in the singular form, indicates that in Seeno also this form is not regular. If the stem final consonant is [l] the singular suffix expected would be [**-dɛ**] not [**-dɛ-rɛ**]. In the Maasina word **luurdɛ** 'cloud', a metathesis of a syllable initial with a syllable final consonant seems to have occurred. The fact that the lateral [l] is replaced by the trill [r] in syllable final position confirms that in the sonority hierarchy the trill [r] is more sonorant than the lateral [l].

A summary of the stem final consonant alternation is given in the following table. All stem final consonant alternations contain the following underlying consonant.

stem final alternation	underlying consonant	stem final alternation	underlying consonant
f : p	***f**	**w : ɓ**	***ɓ**
w : p	***f**	**d : ɗ**	***d**
w : b	***w**	**r : l**	***r**
g : j	***g**	**r : t**	***t**
g : ʔ, y	***ʔ**	**ɲ : ɟ**	***ɲ**
ᵐb : ɓ	***ɓ**		

Different phonological rules and different historical derivations account for the two alternating consonants that appear in the surface forms.

Chapter four
The syllable

4.0 INTRODUCTION

The syllable in Fulfulde has the structure CV(V)(C). A number of authors on Fulfulde do not give a description of the syllable, although they make use of the term syllable and related terms like monosyllabic or polysyllabic (Arnott 1970a:62-64, Noye 1974:11). Some authors give a separate statement on the syllable structure, for others the syllable structure is perhaps too obvious to be described. McIntosh (1984:20) indicates that the syllable is a unit that is necessary for describing stress assignment. Klingenheben (1953) makes use of the syllable in the description of certain phonological changes which are restricted to the syllable final position.

The notion of syllable is needed in even more areas than the ones suggested by these authors. It is shown below that constraints on possible syllable structures limit the possible sequential combinations of vowels and consonants. The syllable also plays an important role in the formulation of rules involving the deletion of vowels and consonants or the reduction of their length. The syllable structure is also invoked as a conditioning factor for the so called "anaptyctic vowels" (Arnott 1970a:55, McIntosh 1984:157) or "Sproβvokal" (Klingenheben 1927:152). The vowels which are claimed to be epenthetic can be [**u**], [**i**] or a vowel identical to the vowel of the following syllable. The actual epenthetic status of these vowels is questionable.

This chapter gives a short sketch of the syllable structure found in Fulfulde, focusing on the Maasina dialect. The possible syllable templates and their syllable weight are described. This includes a discussion of the marginal status of the CVVC syllable and its implications for vowel length and the alternation between CVCC and CVVC that has sometimes been labelled "compensatory lengthening". Then the influence of the sonority hierarchy in a number of phonological rules related to the syllable is discussed. Sometimes changes in the CV-structure can occur to prevent the occurrence of ill-formed syllable structures. In this context, the alleged epenthetic status of a number of vowels in Fulfulde is challenged. Finally, it is demonstrated that stress in Fulfulde is largely predictable from the syllabic structure of words, and a few intonation patterns that make use of the possible stressed syllables in words are described.

4.1 SYLLABIFICATION RULES

The model used in this study to derive the syllable structure is the XMS-model (Schadeberg 1987) which derives the syllable structure of words from the sequence of its consonants and vowels. The name of this model follows from the abbreviations of the three levels used in the derivation of the syllable: the X from the x-tier (also called skeletal, segmental, root or time tier) the M for the moraic level where weight is represented, and the S for the syllabic level. The Greek letters μ and σ represent the mora and the syllable respectively. The

syllables are derived from the sequence of elements on the x-tier or time-tier which is made up of the time slots occuring in an utterance. The number of time slots attached to each morpheme is given in the lexicon. Time slots are linked to segmental matrices that combine the information of the different feature tiers.

In this study a CV-tier replaces the x-tier in the XMS-model. The CV-tier represents an explicit derivation of the consonantal or vocalic status of the time slots. This CV-tier is not formally present in Schadeberg's model, although he has to interprete the time slots on the x-tier as a consonant or a vowel in order to derive the correct moraic and syllabic structure. The consonantal or vocalic status of the time slots on the x-tier must be known to derive the correct syllabic and moraic structure of the words. This consonantal or vocalic status is made explicit on the CV-tier where the time slots are identified as consonantal (C) or as vocalic (V). The terms "consonantal" and "vocalic" are not taken as features in this study; they do not appear in the list of phonological binary features in the matrices that give the phonological content of the speech sounds. Instead, a consonant is considered to be a time slot with a consonantal status on the CV-tier and a vowel is a time slot with a vocalic status on the CV-tier. The consonantal or vocalic status of a given time slot can be derived from the content of the autosegments associated to that time slot. The rules for interpreting time slots as consonantal or vocalic are discussed in section 2.4. The CV-tier is derived from the segmental structure of time slots and the moraic and syllabic structure of a word is derived from the sequence of consonantal and vocalic time slots. The following procedure using the XMS-model produces the syllabic division of a given utterance in Fulfulde.

MORAIC LEVEL

(M1) Build a mora with any CV sequence.

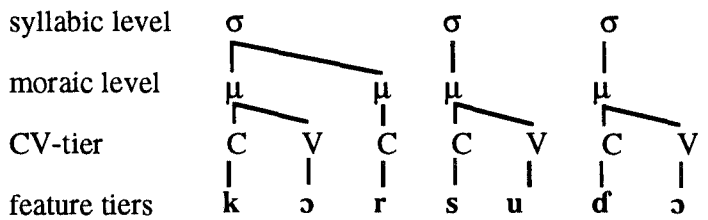
(M2) Build a mora with all V and C that are not in a CV sequence.

SYLLABIC LEVEL

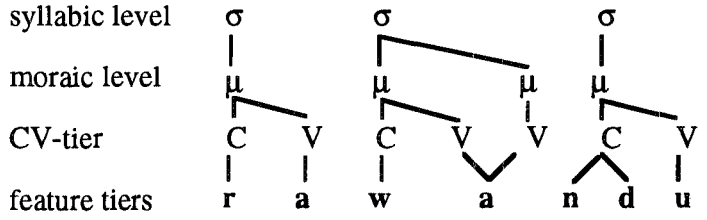
(S1) Build a syllable on each branching mora (constituting a CV sequence)

(S2) Attach all the non-branching morae to the preceding syllable.

The following figures represent the application of these syllabification rules which occur at the word level.



The application of these rules produces the correct syllable structure of the word **kor·su·ɗɔ** 'cherished one' .



The word **ra·waa·ⁿdu** 'dog' is an example of the derivation of the syllabic structure of words in which long vowels and prenasalized consonants occur. The syllable structure shows that the prenasalized sequence [ⁿd] functions as one consonant in the onset of the last syllable.

4.2 WELL-FORMED SYLLABLE STRUCTURES

4.2.1 SYLLABLE TEMPLATES

The following description of the syllable structure is given by Stennes (1967:13) for the Fulfulde dialect of Aadamaawa.

> The phonological shape of all syllables is CV(C) or consonant, vowel (where the vowel can be either short or long) with an optional final consonant.
>
> Stennes (1967:13)

This description is valid for all Fulfulde dialects although it seems to contradict Paradis' analysis of some syllables in Pulaar as having an empty onset in the underlying structure (Paradis 1986:172-177). However, she postulates an additional automatic phonological rule that fills the onset with a glottal stop. The following CV-templates occur as possible syllable structures in Maasina.

CV	CVC
CV_iV_i	CV_iV_iC

Sub-parts of the syllable are the onset, the nucleus, and an optional coda. The CV-core is considered to be the unit which forms the basis of any syllable, rather than the rhyme. The CV-core consists of the onset and the nucleus. The rhyme is formed by the nucleus and the coda. A rule attaching the onset to the rhyme is needed when the rhyme is considered to be the basic unit of the syllable (Clements & Keyser 1983:11-16, Hyman 1985:7, Goldsmith 1990:108). Goldsmith (1990:137) calls this the Maximum Onset Principle. Clements & Keyser (1983:37) call it the Onset First Principle. Hyman (1985:15-17) describes the linking of the onset to the nucleus in the equivalent Onset Creation Rule. An argument for the unity of this CV-core is the fact that the CV-core forms a constant structure that does not undergo any change, neither feature changes nor structural changes. The onset and nucleus are never separated by epenthesis. The assumption that the onset together with the nucleus form the basic unit of the syllable makes it no longer necessary to state the Maximum Onset Principle. Any vowel is linked to a preceding consonant in the same syllable by the syllable assignment rule that assigns a mora to the syllable core CV first.

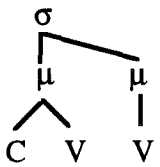
A rule that groups the onset-nucleus unit first has an advantage over the "all nuclei first" approach which is an assignment rule that wants to assign the nucleus first (Goldsmith 1990:117). For this latter approach, a separate rule or a lexical indication is needed to establish which segments (mostly which vowels) form the nucleus. Hyman's Onset Creation Rule proposes to parse all CV sequences first. When I take this CV sequence as the core of the syllable, this makes it unnecessary to give a separate statement about which vowels constitute a nucleus. This follows from the CV-core assignment rule itself: each vowel that is preceded by a consonant constitutes the nucleus of a syllable.

This CV-core assignment rule leaves the coda as a secondary unit in the syllable which basically consists of consonantal or vocalic time slots that cannot form a syllable by themselves. These segments are therefore always attached to the preceding CV-core, thus forming with it a heavy syllable. This coincides with the fact that the presence of a coda in a syllable means that this syllable counts as two morae, i.e. as two units of weight. The four possible syllable types in Fulfulde have the following internal structure:

CV syllable:

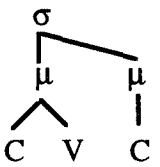
The light CV syllable represents the most simple syllable structure. It consists only of a CV-core which forms one mora.

CVV syllable:



The heavy CVV syllable consists of a CV-core to which a vocalic time slot is added. The CVV syllable consists of two morae: one is formed by the CV-core, one mora is added by the additional vocalic time slot.

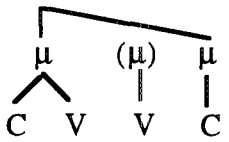
CVC syllable:



The internal structure of the CVC heavy syllable shows a lot of similarity with the CVV syllable. The weights are identical and the division of morae over the CV-core and the coda is also identical in both structures.

The weight structure of the marginally acceptable CVVC syllable is difficult to represent. At the moraic level there are only two morae allowed per syllable, it is not clear which mora (attached to the final V or the final C) is deleted. At the segmental level the CVVC sequence is sometimes allowed. Often reduction occurs at the segmental level.

CVVC syllable:



The heavy CVVC syllable consists of the CV-core to which an additional vocalic and a consonantal time slot are added. A rule must be formulated to delete one mora because Fulfulde does not allow a syllable to contain more than two morae. That the deletion of one mora sometimes has consequences for the phonetic length of the vowel is described in section 4.3.

The CV-core can contain any consonant and any vowel. A further restriction on the segmental structure of the syllable is that all segments that occur in non-branching morae are licensed by their position in the syllable. All vowels occurring in a non-branching mora are identical to the vowel in the preceding CV-core. All consonants that occur in a non-branching mora are either identical to the core consonant of the following syllable (thus forming a geminate) or they are sonorant and they follow the sonority hierarchy pattern, a few exceptions are discussed in section 4.4.2. The definition of CV-core reduces the importance of the rhyme (nucleus and coda) considerably, there are no generalizations about the rhyme that are missed out in the present proposal. The second vocalic time slot in a CVVC syllable probably belongs neither to the CV-core, nor to the coda. Its status is marginal, as is shown by the marginal status of the CVVC syllable itself.

4.2.2 SYLLABLE WEIGHT

Syllables are divided into light and heavy syllables (see Newman 1972). A heavy syllable equals two morae, a light syllable equals one mora.

CV	one mora	light
CVV	two morae	heavy
CVC	two morae	heavy
CVVC	two morae	heavy

The division that Gaden (Gaden & Tyam 1935:xi) makes between short and long syllables coincides with the division between light and heavy syllables. What he calls the metric value of the different syllable structures in Pulaar (Fuuta Tooro) could be interpreted as their syllable weight.

> La syllabe *brève* est formée d'une consonne suivie d'une voyelle brève. La syllabe *longue* est formée d'une consonne suivie d'une voyelle longue ou de deux consonnes encadrant une voyelle, que celle-ci soit brève ou longue, accentuée ou non: **ɗum** et **ɗúum** sont deux syllabes longues de même valeur métrique
>
> (Gaden & Tyam 1935:xi).*

* A short syllable is formed by a consonant followed by a short vowel. A long syllable is formed by a consonant followed by a long vowel, or it is formed by two consonants surrounding a vowel, either long or short, with or without accent. So **ɗum** and **ɗúum** are two long syllables with the same metric value

The equation of one heavy syllable with two light syllables in poetry confirms the syllable weight of CV as one mora and the double weight of two morae for the CVV, CVC, and CVVC syllables. This equation can be demonstrated when the syllables have to follow a prescribed metre, as is often the case in poems. The following two lines come from the epic poem on the life of El Hadj Omar transcribed by Henri Gaden (1935). In this poem, the words are organized according to a metre called **kaamil**.

kaamil metre: — — ◡ — | ◡ ◡ — ◡ — | ◡ ◡ — ◡ —

The sentences following the **kaamil** metre are formed with three metrical phrases which are separated by a vertical line (|). Each metrical phrase consists of seven morae. Stress should preferably fall on the penultimate mora of each unit of seven morae. This stress falls on the last syllable when it is heavy or on the penultimate syllable when the verse ends in two light syllables. Stress is indicated by an accent (`) on the stressed syllable. The symbols for a light syllable (◡) and a heavy syllable (—) are taken from the traditional way of marking rhythm in poetry. The word internal syllable boundaries are represented by a raised point. In the following lines, the morae are divided over the syllables in the way that is prescribed by the **kaamil** metre (Gaden & Tyam 1935:2).

cem·ᵐbìn·ⁿdi ⁿjìr·wu·ⁿdi faa·ʔi·dàa·ri ⁿdi yer·ɓa·tàa
— — ◡ — | ◡ ◡ — ◡ — | ◡ ◡ — ◡ —

ɓam·tìi·ⁿdi sàw·tu ⁿda·nèe·ri ᵐbùul·di ⁿdi haa·ɓa·tàa
— — ◡ — | ◡ ◡ — ◡ — | ◡ ◡ — ◡ —

'Vigorous, glorious, impressive one, who doesn't stagger;
with a strong voice, white with a spot on the face, who won't get exhausted.'

The first syllable **ᵐbuul** of the word **ᵐbuul·di** with a CVVC shape takes the same position as the syllable **daa** with a CVV shape in the word **faa·ʔi·daa·ri** in the first line. This shows that a CVV and a CVVC syllable have equal metric value. It is also possible to replace the long syllable with two short syllables and vice versa, as can be shown in the following lines in **kaamil** metre (Gaden & Tyam 1935:6).

ɗòon ruŋ·ⁿji màc·cu·ɗo fèc·ci·to·yi les·ɗèe·le kà·la
— — ◡ — | ◡ ◡ — ◡ ◡ ◡ | — — ◡ ◡ ◡

ɓèen jùul·ɓe fàa·de ʔe kùf·ru màŋ·ⁿgu ⁿgu tuu·ba·tàa
— — ◡ — | ◡ ◡ — ◡ — | ◡ ◡ — ◡ —

'There he went away the servant (of Allah), he went to cross each of many countries of those Muslims, in the direction of paganism that wouldn't convert'.

The sequences of two light syllables **to·yi** and **ka·la** in the first sentence are balanced with one heavy syllable **maŋ** or **taa** respectively in the second sentence. Gaden adds that such a replacement is only allowed at the end of a metrical phrase.

Syllable weight also determines the correct sequence of light and heavy syllables in a word. Some phonological changes show that there is a preference for light and heavy syllables to alternate. A sequence of three unstressed light syllables CVCVCV is ill-formed. The rule preventing such a sequence deletes the vowel of the middle syllable. This results in an anti-iambic sequence (a heavy followed by a light syllable: CVC-CV).

ˣjaŋⁿg-in-ata	**jaŋ·ⁿgin·ta**	'will teach'
		read-CAUS-R.INCOMPL
ˣfill-an-ɔtɔ	**fil·lan·tɔ**	'will tell for'
		tell-DAT-M.R.INCOMPL
ˣnan-ir-ɛtɛ	**na·nir·tɛ**	'will be heard with'
		tell-CIRC-M.R.INCOMPL
ˣwaɗ-ir-udɛ	**wa·ɗir·dɛ**	'to do with'
		do-CIRC-INF

A long vowel in the first syllable in a sequence of two heavy syllables is often shortened, the result being an iambic rhythm (a light syllable followed by a heavy syllable). This rule applies especially in word final position but also at the beginning of words.

ˣtaanee-wel	**tàa·ne·wel**	'small anvil'	**taanèɛ-rɛ**	'anvil'
ˣⁿgaaj-ii-ɗaa	**ⁿgaa·ji·ɗàa**	'you have chatted'	**ⁿgaaj-ìi-mi**	'I have chatted'
ˣhiir-aa-ⁿdɛ	**hi·ràa·ⁿdɛ**	'evening meal'	**hìir-dɛ**	'to be evening'
ˣᵐbooɗ-eefi	**ᵐbo·ɗèe·fi**	'goodness'	**wòoɗ-udɛ**	'to be good, beautiful'

This vowel shortening is optional: the following examples show alternative forms that were both attested in Maasina.

ⁿgɛ·lɔ̀ɔ·ba	also	**ⁿgɛɛ·lɔ̀ɔ·ba**	'camel'
ɟi·wɔ̀ɔ·ⁿdɛ	also	**ɟii·wɔ̀ɔ·ⁿdɛ**	'rain storm'

The word is the domain of syllabification and of rules depending on syllable weight.

4.3 WELL-FORMEDNESS OF THE CVVC SYLLABLE STRUCTURE

4.3.1 MARGINALITY OF THE CVVC SYLLABLE

Although the CVVC syllable appears to be equal in weight to the CVV and CVC syllables in poetry, some phonetic and phonological shortening rules indicate that a CVVC syllable is considered to be slightly overweight. This gives the impression that both elements (V and C) contain weight and that both elements are added to the CV-core. The overweight may be the reason why CVVC is a marginal syllable structure. The limited distribution of the CVVC syllable is an indication of its marginal status. The marginal CVVC syllable mainly occurs in transparent productive word formations. Extra heavy syllables are more commonly found in word final position but in Fulfulde the CVVC syllable only occurs word initially. The situation in Fulfulde is fostered by the morphological structure of the word: morphemes with an underlying CVVC structure are mostly (verb) roots; the place of the root is word initial; when the root is followed by a consonant initial suffix a CVVC syllable may be the result.

Sometimes the CVVC syllable is subject to vowel shortening even though vowel length is a very steady phonological feature in Fulfulde. A difference must be made between stressed and unstressed CVVC syllables. Unstressed syllables are more likely to be shortened. Vowel shortening also occurs more frequently in less transparent derivations in the lexicon. The following examples show the shortening of a long vowel in a closed syllable.

^{x}hiir-naa^{n}gɛ	**hir-nàa^{n}gɛ**	'west'	**hiir-dɛ** 'be evening' + **naa^{n}gɛ** 'sun'
^{x}jɔɔm-suudu	**jɔm-sùudu**	'partner'	**jɔɔm** 'owner' + **suudu** 'house'
^{x}waas-r-udɛ	**wày-rudɛ**	'do without'	**waas-udɛ** 'to lack' + -r- CIRC

Stressed CVVC syllables are less rare. There is no clear difference in the distribution of vowel shortening between productive and less productive word formations. The stress placed on the syllable might prevent vowel shortening in those CVVC syllables. Nevertheless, there are a few examples where variation occurs in the vowel length of long vowels in stressed closed syllables.

tèw	**(tèew, tèewu)**	'meat'
kàw	**(kàaw, kàawu)**	'maternal uncle'
kɔ̀rɗɔ	**kɔ̀ɔrɗɔ**	'female slave'
tìrrɛ	**tìirrɛ**	'difficulty'

This shortening of a CVVC syllable to CVC is not obligatory in the Fulfulde of Maasina. The distribution of the short and long vowels might be connected to the speech-rate, i.e. the vowel is often shortened in fast speech. It can also be related to regional differences. Speakers of Kunaari and Gimballa say that Fulfulde speakers from Tenenku (Maasina centre) gave the impression of talking slowly, of dragging their language ("Ils tirent leur langue"). This impression might be caused by a more frequent occurrence of long vowels in closed syllables in the Fulfulde of Tenenku. In a number of dialects, such as the Fulfulde of 'Yola (Aadamaawa) and Kaceccereere (Nigeria) the occurrence of the CVVC syllable is

more restricted. McIntosh (1984:13-18) makes a distinction between common and irregular syllable structures in Kaceccereere. She states that the commonest syllables are CV, CVV, and CVC (McIntosh 1984:13). The irregular syllable structures in this dialect are a closed syllable with a long vowel (CVVC) or a long final consonant (CVCC). The only example of a syllable with such a CVVC structure given is **ʔaan** 'you' which is an independent pronoun. The other irregular structure CVCC is only found in the words ending in **koyŋ** (class-marker of plural diminutive) and in the independent pronoun **minn** 'me'. McIntosh (1984:15) gives the following derivations and inflections where a CVVC morpheme shortens its vowel before another consonant initial morpheme in order to avoid a CVVC syllable.

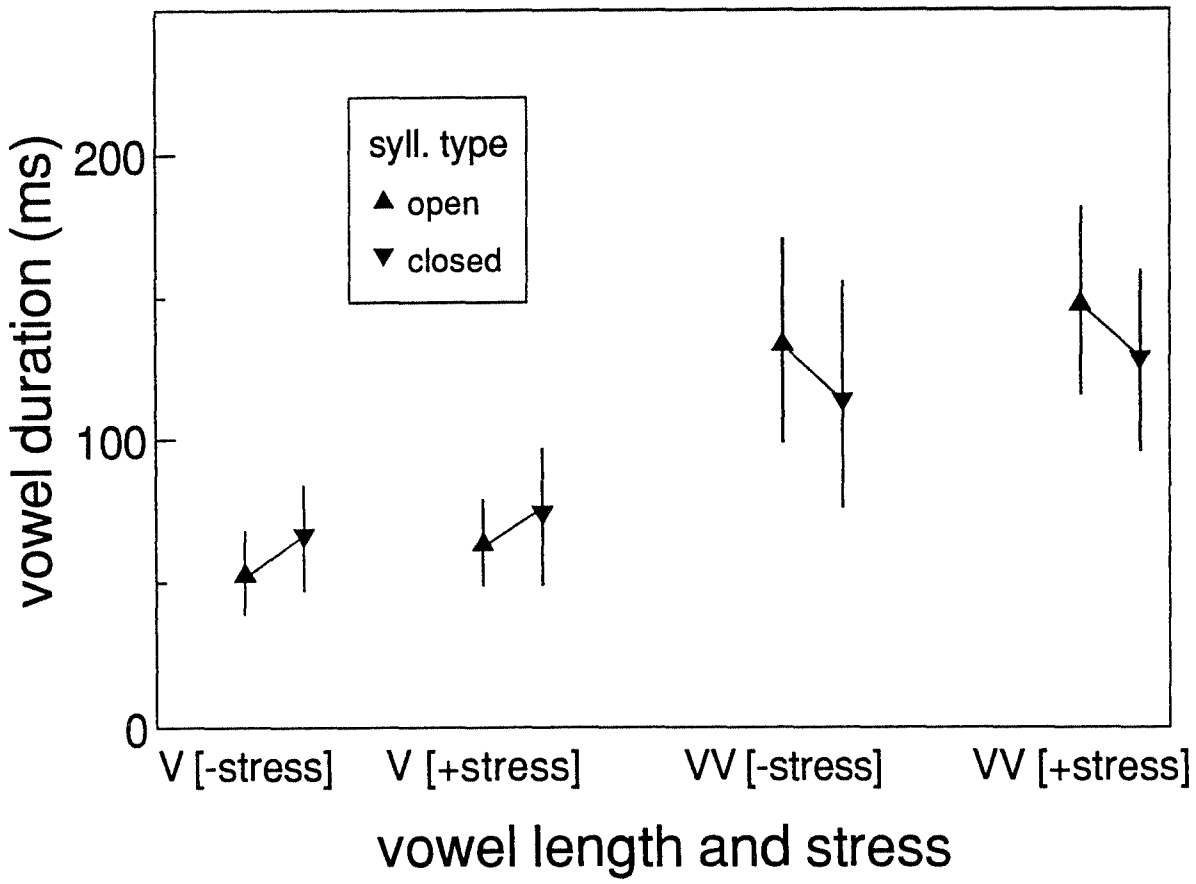
long vowel morpheme		short vowel allomorph	
ʔon ɲaam-ay	'You will eat.'	**raa no ɲam-r-at-on**	'See how you eat.'
		ɲam-ⁿdu wal-aa	'There is no food.'

The stem **ɲaam-** 'eat, food' alternates with **ɲam-** as a result of vowel shortening in closed syllables in Kaceccereere.

4.3.2 A PHONETIC EXPERIMENT ON VOWEL LENGTH IN CVVC SYLLABLES

During field work on Maasina, it was not immediately clear whether underlying long vowels in closed syllables were shortened or not. It seemed that long vowels in closed syllables were shorter than long vowels in open syllables. However, speakers were mostly convinced of the length of certain long vowels in a closed syllable. The speaker's perception of vowel length could have been influenced by the underlying phonological length of the vowels. Sometimes the underlying structure seems to have more reality in the speaker's perception of his/her language than the actual phonetic realization of a word. The frequent disagreement on the pronunciation of vowel length in particular words made it clear that there was a problem with the interpretation of vowel length in closed syllables in the Fulfulde of Maasina.

A phonetic investigation into the length of vowels in open and closed syllables was carried out. Both phonologically long and short vowels were measured. The results are given in Appendix 2. The length of long and short vowels was measured in open and closed syllables, in stressed and unstressed syllables. The following table shows the average length of the different groups of vowels with the standard deviation.



Stress has a slight influence on the length of a vowel. This effect can only be registered when a large group of measurements is taken.

The effect of the presence of a coda (syllable final consonant) on the duration of a long vowel is the opposite of the effect exerted on a short vowel followed by a coda. Long vowels are significantly shorter in closed syllables, short vowels are significantly longer in closed syllables. This is contrary to the pattern found in most languages where the coda has a shortening effect on all vowels (Vincent van Heuven, personal communication). Fulfulde deviates from the common pattern because short vowels in closed syllables are longer than those in open syllables (rather than vice versa). Possibly, this can be explained by syllable weight. CV is a light syllable containing one mora. CVC, CVV and CVVC are heavy syllables, they both contain two morae. The vowel in a CVVC syllable may be shortened to reduce overweight (it contains phonological material for three morae). The vowel lengthening in CVC makes this syllable to become more similar (in duration) to the other two heavy syllable structures. Perhaps this facilitates the perception of all heavy syllables as distinct from the light CV syllable.

The phonetic change due to closedness of the syllable in the duration of long and short vowels does not result in a complete overlap of the vowel length in CVC and CVVC syllables, they are still significantly different.

4.3.3 SHORTENING OR COMPENSATORY LENGTHENING (CVVC vs. CVCC)

In Fulfulde dialect comparison, alternations can be found between a CVVC and a CVCC stem. At first sight this looks like compensatory lengthening. However, the alternative forms CVCC and CVCC are caused by reduction of the marginal CVVC syllable structure. Rather than one being derived from the other, both structures, CVVC and CVCC, are derived from an underlying CVVC·C sequence. A geminate consonant often shortens in fast speech when the final consonant in a CVVC syllable is the first element of this geminate consonant. Depending on the features linked to the geminate consonant, either the long vowel or the long geminate of the underlying CVVCCV sequence is shortened. In Maasina a difference must be made between prenasalized geminates and the other geminates, i.e. plain oral or plain nasal geminates. Plain geminate consonants are not usually shortened in order to avoid extra-heavy syllables, shortening of the VV being the preferred strategy.

The last consonant of a CVVC syllable can be deleted when it is the first of a prenasalized geminate. The results of such a process are forms like **huu^{n}dɛ** 'thing' and **lii^{n}gu** 'fish'. This shortening of a prenasalized geminate can also be found in the following forms where CVVCC alternates with CVVC when CC is a geminate prenasalized consonant.

^{n}juun^{n}di, ^{n}juu^{n}di	'length'
ɗaan^{n}di, ɗaa^{n}di	'pack-ox'
wiin^{n}dɛ, wii^{n}dɛ	'corral'

The long vowel of a CVVC syllable can be shortened when it precedes geminate consonants which are plain oral or plain nasal, as in **kullɛ** 'things' and **liɗɗi** 'fishes'. The following alternative forms show this shortening of CVVCC to CVCC when CC is plain oral or plain nasal geminate consonant.

puuddi, puddi	'henna'	**biillɛ, billɛ**	'corrals'
^{n}juukki, ^{n}jukki	'length'	**tuunnudɛ, tunnudɛ**	'to be dirty'
ɓɔɔddɛ, ɓɔddɛ	'balls'	**loonnudɛ, lonnudɛ**	'to wash clothes'
tiirrɛ, tirrɛ	'difficulty'		

In Maasina the paradigms of **huu^{n}dɛ/kullɛ** 'thing' and **lii^{n}gu/liɗɗi** 'fish' show a CVVC vs. CVCC alternation which results from the shortening of underlying CVVCCV forms. This alternation can be found within a paradigm, but not within one word in one particular dialect. However, this CVVC/CVCC allomorphy can be found when comparing dialects.

	Maasina	Liptaako	Gombe	Ringimaaji
'fish'	**lii^{n}gu**	**lii^{n}gu**	**liŋ^{n}gu**	**liɟi^{n}gu**
'ashes'	**^{n}doo^{n}di**	**^{n}don^{n}di**		
'thing'	**huu^{n}dɛ**	**hun^{n}dɛ**	**huu^{n}dɛ**	**hu^{ʔ}u^{n}dɛ, huu^{n}dɛ**
'snake'	**^{m}boddi**	**^{m}boodi**	**^{m}boddi**	**^{m}bo^{ʔ}odi**
'snakes'	**bɔllɛ**	**bɔɔlɛ**	**bɔllɛ**	**bɔ^{ʔ}ɔlɛ**
'things'	**kullɛ**		**kuujɛ**	**kuujɛ**
'fishes'	**liɗɗi**			**liɟɟi**

The alternation of CVVC with CVCC in the examples above might be interpreted as examples of compensatory lengthening, but they are not. These two sequences are the result of the application of two different (dialect related) repair rules to avoid the marginal CVVC structure. Depending on the word and the dialect in question, either the long vowel or the geminate consonant in a CVVCCV sequence can be shortened. The following distribution of shortening rules can be formulated for the different dialects:

	Maasina	Liptaako	Gombe	Ringimaaji
$CVVC_iC_i$	shorten VV	shorten CC	shorten VV	shorten CC
$CVVN^nC$	shorten CC	shorten VV	shorten VV	shorten CC

The conclusion is that the alternation of CVVC with CVCC is not an example of compensatory lengthening. Within one dialect, the CVVC/CVCC variation is not found within one word. A given CVVCC sequence can only be shortened in one way: either the vowel is shortened or the consonant. The choice is determined by the features of the geminate consonants. The alternative forms support the analysis that there is a tendency to avoid the marginal CVVC syllable structure.

4.4 SONORITY AND SYLLABLE STRUCTURE

Sonority is a phenomenon connected with the syllable. An utterance can be characterized by successive peaks and valleys of sonority. In Fulfulde a peak of sonority will always coincide with the nucleus of a syllable. An utterance has as many syllables as there are sonority peaks. Sonority is an acoustic feature that is not easily defined. Terms such as loudness and openness are used to describe sonority (Bloomfield 1933: 98). Bloch and Trager (1942:22) try to define sonority in terms of articulatory gestures as follows (cited by Goldsmith 1990:110):

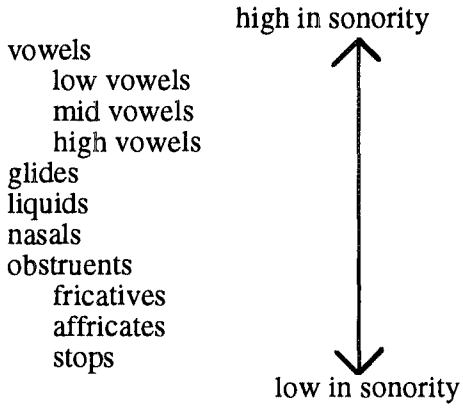
> The sonority of a sound is primarily determined by the size of the resonance chamber.

There certainly is a correlation between the acoustic and the articulatory features of speech sounds. The sonority of a speech sound is related to the size of the resonance chamber during its production, as defined by Bloch and Trager. But voicing is also very important for the sonority of a segment. The voiced vowel [a] is definitely more sonorant than the voiceless vowel [ḁ], not withstanding the fact that in articulatory terms the resonance chamber of both sounds are equal.

In this study sonority is thought to be an acoustic feature that should be defined in terms of audibility. Sonority is a feature with relative values that should alternate in time in an utterance. The audibility of the utterance increases if sonorant segments alternate with less sonorant segments, i.e. if vowels alternate with consonants. One reason for not describing sonority in terms of the articulatory apparatus is the fact that phonological rules related to the sonority of a segment are very different in nature from the phonological rules involving articulatory features. The kinds of rules conditioned by a certain articulatory feature specification of adjacent segments usually involve assimilation: spreading of an articulatory feature. Sections 4.4 and 4.5 describe some phonological structure constraints and phonological rules related to sonority. The motivation for the constraints and rules

involving sonority are not conditioned by simple adjacency: the structure of the syllable plays an important role in the conditioning of changes in sonority. Rules involving sonority describe these alternations of sonority in time, i.e. they describe the alternations of sonority of speech sounds in the syllable. The inherent sonority of a segment plays an important role in determining its position in the syllable.

The following table gives a representation of the ranking of segments according to their inherent sonority. The sonority hierarchy in this table is how the ranking is usually described (Goldsmith, 1990:111).



The sonority hierarchy in Maasina and the restrictions on the sequence of segments according to their sonority are discussed in more detail in the following sections. In Fulfulde, sonority seems to play a role in the sequence of consonants even if, by the rules of syllable structure, those consonants are in different syllables. In the description of the sonority pattern of syllables, a distinction must be made between open and closed syllables. The open syllables have the templates CV and CVV. Their sonority patterns are identical. The first time slot in a syllable (the onset) may be any consonant, any consonant being less sonorant than any vowel. The vowel in an open syllable is the sonority peak of that syllable. Open syllables in Fulfulde contain a short or a long vowel. The second vocalic time slot in a VV sequence is always identical to the first.

There are no diphthongs in Fulfulde. An important argument for analyzing the sequences of a short vowel followed by [y] or [w] as VC is the fact that [y] and [w] do not spread ATR harmony in this environment, while [i] and [u] would (see section 2.9.3).

The closed syllables CVC and CVVC are characterized by a consonantal time slot in the coda of the syllable. The sonority pattern of a closed syllable consists of the same initial CV pattern as described for an open syllable, but the final segment in a closed syllable has to obey a number of constraints related to the sonority hierarchy. The sonority hierarchy and its related rules in Maasina are compared with the sonority hierarchy of coronals described by Paradis (1986, 1987b) and with the phonological rules related to the syllable posited by Klingenheben (1941, 1953). He states a number of rules whereby the syllable final position causes certain sound changes (Silbenauslautgesetze). In the next section these syllable final sound changes are described as rules preventing ill-formed sonority sequences. The syllable final consonants that undergo these changes have to obey the sequential ordering determined by the sonority hierarchy.

It is useful to make a distinction between word internal syllables and word final syllables, because sonority constraints in a syllable are more strict word finally than word internally. Stennes (1967:14) distinguishes word final syllables from the other (word internal) syllables in Aadamaawa. He says that word internally any consonant can be found in the syllable coda. Stennes describes the following word final restrictions: the laryngealized stops [ɓ] and [ɗ] do not occur word finally; voiceless stops do not occur word finally except in ideophones; other stops occur only under restricted conditions in this position.

In Maasina a syllable cannot end in an obstruent. This constraint is true without exception for word final syllables. Only glides, liquids and nasals can be found in the coda in Maasina when the closed syllable occurs word finally. This is described in Klingenheben's rules involving the syllable final position. Word internally, however, obstruents can occur syllable finally under a number of conditions, for example as part of a geminate consonant.

After discussing the sonority hierarchy in Maasina, the phonological rules that repair ill-formed sequences in terms of the sonority (cf. Vennemann 1988) are given in more detail.

4.4.1 KLINGENHEBEN'S "SILBENAUSLAUTGESETZE"

Klingenheben's name is linked to a rule of coda weakening in Hausa (Westermann 1934, Newman & Salim 1981:108). This rule describes the historical change of syllable final labial and velar obstruents into the labio-velar glide [w]. Klingenheben's Law in Hausa involves the following historical phonological changes.

all dialects:	***K > w / __$**	(***K = {k, g, ƙ}**)
standard Hausa:	***P > w / __$**	(***P = {p/f, b, ɓ}**)

For Fulfulde, Klingenheben (1941:38-46) also described a number of laws involving syllable final segments which he calls "Silbenauslautgesetze". These laws describe historical phonological rules that explain dialectal variants of the same word. In these rules it is the syllable final position that triggers the sound changes. Klingenheben made use of the data of Gaden (1913, 1914) on Pulaar, of Cremer (1923) on Liptaako, and of Westermann (1909) on the Fulfulde of the Hausa states. Klingenheben's examples show syllable final (palato-)alveolar or palatal obstruents that have become [y].

lesdi	**leydi**	'land'
kos^{n}gal	**koy^{n}gal**	'foot'
ɓesda	**ɓeyda**	'increase'
tokoso	**tokoyru**	'small'
gaska	**gayka**	'hole'
les	**ley**	'under'
yesre	**yeyre**	'breasts (woman), udder (cow), below the belt (man)'
gasna	**gayna**	'cause to end' < **gas-a** 'end'
casɗe	**cayɗe**	'acacia trees' < sg. **cas-ki**
wo^{ʔ}ot-	**wo^{ʔ}oyre**	'one'

hat	**hay**	'even'
***garat-ɗo**	**garay-ɗo**	'who usually comes'
lajre	**layre**	'limp'
ɗoj-	**ɗoyru**	'cough'
ɗojude	**ɗoyru**	'to cough - a cough'
ɲaj-	**ɲayre**	'adorn - pearl'
kaaje	**haayre**	'stones - stone'
taj-	**tayre**	'cut off - part'
laʔ-	**laykikin-**	'limp - pretend to limp'
bappaaɲo	**bappayɓe**	'father's brother - pl.'
gaɲɔ	**wayɓe**	'enemy - pl.'
saɲ-	**caycayɗo**	'weave - weaver'
keeɲe	**heeyre**	'livers - sg.'
daɲ-	**dayɗo**	'give birth - '(slave) who has given birth (by her master)'

He also lists a number of examples where a syllable final labial obstruent has become [**w**].

ɗopta	**ɗowtude**	'to accompany, to lead'
habre	**hawre**	'to fight'
nabde	**nawde**	'to take away'
woɓru	**wowru**	'mortar'
safara	**sawrude**	'medicine - to heal, to cure'
suftaade	**suutaade**	'to flee (from husband)'
naafki	**naawki**	'armpit'
naafde	**nawde**	'to carry under the arm - to carry away'
nofru	**nowru**	'ear'
sofru	**sowru**	'chicken, young bird'
deftere	**dewtere**	'book'
faamru	**faawru**	'frog'
wumde	**wuwre, ʔuure**	'abscess - pimple'

These sound changes are called "weakening" processes (Goldsmith 1990:125), and because in this case the weakening takes place in the coda it is called "coda weakening" (Vennemann 1988:23-26, 50). Coda weakening involves the change of a syllable final segment into a more sonorant segment with (more or less) the same place features.

In syllable final position a (palato-)alveolar or a palatal obstruent is replaced by the more sonorant palatal approximant [**y**]; a labial obstruent is replaced by a more sonorant labio-velar approximant [**w**]. The examples of a velar obstruent weakening in syllable final position are rare. Klingenheben (1941:44) provides only two of such examples:

1) The two variant forms **waklude** and **waylude** 'to form' where the syllable final velar obstruent [**k**] alternates with the more sonorant palatal approximant [**y**].

2) Words where the syllable final velar obstruent [**g**] changes into the more sonorant labio-velar approximant [**w**] like in ***bag-ɗi > baw-ɗi** 'drums'. These are however more likely to be examples of assimilation of an underlying [**w**] to the initial [**g**] of the class suffix **-gu** in the singular ***ᵐbaw-gu > ᵐbag-gu** 'drum'.

The phonological rules related to syllable positions that Klingenheben described for Fulfulde have not received much attention in later studies. The changes these rules describe are however difficult to explain by adjacency to a following consonant alone because they also occur word finally. It therefore has to be the position in the syllable that conditions the "Silbenauslautgesetze". Such rules are coda-weakening, assimilation, and deletion of the consonant in the coda.

Klingenheben (1963:18) gives the following examples of consonant deletion conditioned by the syllable final position. In these examples the laryngeal consonants (**h** and **ʔ**) and the consonants (**l**, **r**, **ɗ**) are replaced by more sonorant vowels in syllable final position.

wiʔ-	**wiita**	'say - say again'
teʔ-	**teegal**	'marry - marriage'
fah-	**faare**	'deaf'
duh-a	**duuta**	'put on trousers - take off trousers'
***dammugal-ru**	**dammugaaru**	'house with many doors'
***gerlal-ye**	**gerlaaye**	'partridge coloured cow'
***waɗ-n-**	**waani**	'cause to make'
***waɗ-r-**	**waari**	'make with'
yiɗde	**yiide**	'love'

The deletion of these consonants and their replacement by vowels is called compensatory lengthening. This effect of compensatory lengthening only occurs when a consonant in syllable final position is deleted. This effect is different from the effect of the loss of a consonant in syllable initial position. Compensatory lengthening probably takes place to maintain the weight of the heavy syllable. The loss of a syllable initial consonant is not compensated for and usually results in the reduction of the number of syllables.

4.4.2 CODA CONSTRAINTS IN MAASINA

At first sight there seems to be no restriction on the occurrence of consonants in syllable final position. The only type of consonant which is never found in syllable final position is a prenasalized consonant. Obstruents occur in syllable final position when they are the first part of a geminate consonant, as is shown in the following examples.

ʔab·ba	'father'	**maj·ju·dɛ**	'to be lost'
wad·dii	'has brought'	**hɛc·cɔ**	'fresh'
hɔg·gɔ	'corral'	**nɛɗ·ɗɔ**	'person'
kop·pi	'knees'	**ɓiɓ·ɓɛ**	'children'
lek·ki	'tree'	**moj·ji**	'(it) is good'
yɔt·taa·dɛ	'to arrive'	**joʔ.ʔin·ⁿdɛ**	'to put down'

The sonority restrictions in Fulfulde are the following: Each vocalic segment represents a peak in sonority, and as such a syllable nucleus. Each consonantal segment represents a "minimum" (lowest) point in sonority; such elements functions as syllable onsets. Any other segment is syllabified as a (pure) coda segment; such segments are always sonorant,

and they must be higher on the sonority hierarchy than the onset of the following syllable in the same word.

Geminate consonants are fully covered by these statements. As segments, they represent a sonority minimum in the chain; they are linked to two successive time slots belonging to two syllables (coda and onset). Not being pure coda segments, there are no relevant restrictions concerning the sonority of geminates.

There are some counter-examples where a consonant [**ɓ**] occurs in the coda of a syllable, this consonant [**ɓ**] is not sonorant, often it is not allowed as a pure coda.

mooɓudɛ	'to be together'
mooɓtudɛ, mooptudɛ, moottudɛ, mottudɛ	'to gather'
moopti, mopti, mootti, motti	'Mopti'
yoɓudɛ	'to pay'
ⁿjoɓdi, ⁿjobdi	'(negotiated) wages'

Variant forms with partial or total assimilation of syllable final [**ɓ**] to the consonant in the following onset indicate that the appearance of the consonant [**ɓ**] in syllable coda is less well-formed. The consonant [**ɓ**] assimilates in voice only to [**t**] in the sequence [**ɓt**] which results in the occurrence of an obstruent [**p**] in the coda in **mooptudɛ** 'to gather, assemble' which is a variant of **mooɓtudɛ**. The underlying sequence [**ɓt**] has merged into a geminate [**tt**] in the variant form **moottudɛ** 'to gather, assemble'.

The sequence [**ɓd**] shows assimilation of voice in the alternative sequence [**bd**] in the variant forms **ⁿjoɓdi, ⁿjobdi** 'wages'. From the above examples it appears that [**ɓ**] is the source of the counter-examples to the rule which states that an obstruent can only occur in the syllable coda if it is part of a geminate. To put these counter-examples in a broader perspective, it must be emphasized here that the restriction on the syllable coda is an innovation of the Maasina dialect. In the dialects of Fuuta Tooro and Fuuta Jallon obstruents can occur in syllable final position. In Maasina, underlying laryngealized consonants often change into nasal consonants in syllable final position (see section 3.2.2).

4.4.3 PARADIS' SONORITY HIERARCHY OF CORONAL CONSONANTS

Paradis' (1986:210, 1987:128) Sonority Condition on Coronal Consonants describes a sonority constraint on the sequential order of coronal consonants .

> The first consonant within a sequence of two coronal consonants must be more sonorous than the second. Paradis (1986:210, 1987:128)

Paradis uses the feature coronal for both palatal and (palato-)alveolar consonants. In this study the feature coronal is used in the same way. The coronal consonants are the palato-alveolar and the palatal consonants {**t, r, d, l, s, j, ɟ, c**}. For Pulaar, Paradis (1986:211, 1987b:129) describes the following sonority hierarchy, i.e. the ordering of segments from the least sonorant to the most sonorant segments.

least sonorous ⟵ obstruents nasals **l** **r** glides vowels ⟶ most sonorous

The sonority condition thus prohibits a number of consonant sequences that indeed do not occur in Pulaar. But the condition only applies to coronal consonants. However, the sonority constraint could be extended because obstruent-glide sequences (e.g. ***kw** ***ky** etc.) are also not permitted in either Maasina or Pulaar, regardless of the place features.

Paradis describes the coronal sonority constraint as a restriction on the sequence of two consonants. She does not explicitly link this sonority condition to the syllable structure. There is however a clear link with the syllable structure: the more sonorant segment of the two consonants in sequence is always placed in the syllable coda. As demonstrated by Klingenheben, the syllable coda in Fulfulde is a position where coda weakening (i.e. phonological changes increasing the sonority of a segment) occurs. These are reasons for the improving upon the sonority constraint for Fulfulde (as proposed by Paradis).

Paradis uses this sonority constraint to explain the allomorphy of the suffixes of the NDI, NDE and NDU classes. For example, the suffixes of the NDE class can have the forms **-ɛrɛ**, **-rɛ** and **-dɛ** (Paradis does not list the possible suffix form **-ⁿdɛ** here), so one is vowel-initial (**-ɛrɛ**) and the other suffix forms are consonant initial (**-rɛ** and **-dɛ**). The following table lists a number of combinations of these class suffixes with stems ending in a coronal obstruent. The restrictions stated in the sonority constraint on coronals exclude the suffix forms **-r**V and **-d**V from the NDI, NDE, and NDU class suffixes.

woot-uru	'one'	***woot-ru**	***woot-du**
wɔj-ɛrɛ	'hare'	***wɔj-rɛ**	***wɔj-dɛ**
nad-ɛrɛ	'belt'	***nad-rɛ**	***nad-dɛ**
hes-iri	'new'	***hes-ri**	***hes-di**

The last two columns list ill-formed sequences that violate the sonority hierarchy of coronal consonants in Pulaar, in combination with the other forms of the same class marker. The coronal obstruents {**t**, **j**, **d**, **s**} cannot precede [**r**] because [**r**] is more sonorant than an obstruent. An obstruent cannot precede [**d**] because they are equal in sonority. Therefore, according to Paradis, the only possible remaining form of the class suffix is the vowel-initial one.

There are two problems with this explanation. Firstly, the coronal sonority constraint explains only the choice for the vowel initial allomorphs of the NDI, NDE, and NDU class suffixes (in Grade A). I think that only the suffix forms of grade A are phonologically conditioned (see Chapter six). The forms of grades B, C, and D are chosen because of their specific meaning and not because of the phonological shape of the stem (including the degree of sonority of its last consonant). Secondly, the sequence [**sd**] is well-formed in Pulaar. In dialects where the sequences [**sr**] and [**sd**] are ill-formed (as in Maasina) coda weakening to [**yr**] and [**yd**] respectively can also prevent ill-formed sequences. Therefore, the sonority constraint does not suffice to explain the choice of the vowel initial suffix form.

4.4.4 SONORITY HIERARCHY IN MAASINA

The rules involving the sonority hierarchy differ from dialect to dialect. One of the reasons why the coronal sonority constraint involves only the alveolar and palatal consonants is the fact that in Pulaar, the dialect described by Paradis, the labial and velar obstruents can occur before [**r**]. The following dialect comparison shows that the sequences [**br**] and [**kr**] are well-formed in Pulaar, but ill-formed in Maasina.

Pulaar (Mauritania)		Maasina (Mali)	
faab-ru	'frog'	**faa^{m}b-uru**	'frog'
caak-ri	'couscous'	**^{n}daak-iri**	'bull with coloured neck'
		hɛɛb-ɛrɛ	'stirrup'

There are more sonority restrictions in the Maasina dialect than in Pulaar. Morphemes ending in a single velar or labial obstruent also combine with a vowel initial suffix form in grade A in Maasina, as is shown in the comparison of the suffixes of the above stems in Maasina and Pulaar. The well-formedness and ill-formedness of all possible consonant sequences (in terms of sonority) in Maasina are listed below. Geminates are not included because they consist of only one segment (linked to two consonantal time slots).

well-formed	limited distribution	ill-formed	
N-O	(O-O)	^{x}O-N	O = Obstruent
M-O	(R-L)	^{x}O-L	N = Nasal (except [**m**])
R-O	(M-L)	^{x}O-R	L = [**l**]
L-O	(M-L)	^{x}O-M	R = [**r**]
G-O	(M-R)	^{x}O-G	M = [**m**]
M-N		^{x}N-L	G = Glide
R-N		^{x}N-R	
L-N		^{x}N-M	
G-N		^{x}N-G	
L-M		^{x}L-R	
R-M		^{x}L-G	
G-M		^{x}R-G	
G-R		^{x}M-G	
G-L			
G-G			

The sequences with limited distribution (which are put between brackets) can occur, but certain phonological changes are sometimes operative to change it. This is an indication that such a sequence is less preferred although well-formed. Some sequences of segments with equal sonority are allowed. The limited distribution indicates that these structures are less well-formed. There is no absolute boundary between well-formed and ill-formed syllable structures. This is also the reason why Vennemann (1988) speaks of "Preference Laws" when he tries to explain the sound changes that are conditioned by the syllable.

A generalization of the above well-formed and ill-formed consonant sequences in Maasina will have to state the fact that in a sequence of two consonants the first consonant is not allowed to be less sonorant (stronger) than the second consonant. The constraint is formulated in terms related to the syllable structure, rather than in terms of two sequential consonants only.

The Maasina sonority constraints are formulated as in section 4.4.2: Each vocalic segment represents a peak in sonority, and as such a syllable nucleus. Each consonantal segment represents a "minimum" (lowest) point in sonority; such elements function as syllable onsets. Any other segment is syllabified as a (pure) coda segment; such segments are always sonorant, and they must be higher on the sonority hierarchy than the onset of the following syllable in the same word.

The explicit relation of sonority with the syllable structure makes the reason for these restrictions more obvious, and it shows the relation with coda weakening. Segments in the syllable coda tend to become more sonorant in order to obey the tendency towards open syllabicity. The tendency to open syllabicity is defined as a preferred tendency for a syllable to end in a segment with a high degree of sonority.

The order of the segments in the sonority hierarchy of Maasina is very much the same as the sonority hierarchy stated by Paradis for Pulaar. The sonority hierarchy or "hierarchy of consonantal strength" that occurs in Maasina is given below.

most sonorant ⟵⟶ least sonorant

vowels	glides	r	l	nasals	obstruents	ʔ	h
i	w			m	f, s		
e	y			n	b, d, g		
ɛ				ɲ	p, t, k		
a				ŋ	ɓ, ɗ, ʄ		
ɔ					c, j		
o					^{m}b, ^{n}d, ^{n}j, ^{n}g		
u							

The positions of [ʔ] and [h] on the sonority hierarchy are difficult to determine because of their limited distribution. Both consonants cannot combine with other consonants. The glottal stop can occur as a geminate (very rare though). The consonants [ʔ] and [h] only occur as single consonants in the onset of the syllable which is the least sonorant position in the syllable. They are put at the lowest end of the sonority scale. The diagram of the sonority hierarchy combined with the sonority constraint reads as follows: A consonant cannot be followed by another consonant if this second consonant is less sonorant, i.e. a consonant to its left side in the diagram.

For example: the sequence [rn] is allowed, but the sequence *[nr] is not. The labial nasal [m] occurs in a number of sequences which are exceptions to these rules which cause some confusion about the particular place of the labial nasal [m] in the sonority hierarchy.

4.4.5 PLACE OF [m] IN THE SONORITY HIERARCHY

The consonant sequences **mr/rm** and **ml/lm** disturb the sonority constraint, although some phonological sound changes of the sequences [**mr**] and [**ml**] indicate that they are less well-formed. The exceptions of sequences with [**m**] are discussed in more detail in the next section. The consonant sequences [**mr**] and [**rm**] occur e.g. in **nimrɛ** 'darkness' and **sirmɛ** 'butter ball'. The [**mr**] sequence is the less preferred sequence since sometimes metathesis occurs. For instance in the variant forms of the place name **sɛmra** and **sɛrma** (**sɛmra** is the older form). The (morphologically irregular) form **sirmɛ** 'butter ball' could be derived from a (morphologically regular) form ***simrɛ** etymologically. The suffix **-rɛ** from the NDE class is a probable suffix for round forms (ball) and for small units of a larger mass noun (e.g. butter). In Maasina the following words contain the sequence [**mr**]. A very short epenthetic vowel [ə] sometimes occurs to break up the sequence of [**mr**].

ⁿjuumri, ⁿjuumᵊri, ⁿjuumiri	'honey'	**yuum-aadɛ**	'to collect honey'
ɲaam-ri	'cereals'	**ɲaam-udɛ**	'to eat (lit.)'
lam-ru	name giving day'	**laɓ-udɛ**	'to shave'
ɓeem-ri	'yearly ebb'	**ɓeeɓ-udɛ**	'to dry up'
ɓuum-ri	'a cold, flu'	**ɓuuɓ-udɛ**	'to be cold'
ɲam-rɛ / ɲaɓ-ɓɛ	'gain'	**ɲaam-udɛ**	'to gain (fig.)'
fim-rɛ / piɓ-ɛ	'knot'	**fiɓ-udɛ**	'to tie'
nim-rɛ / niɓ-ɛ	'darkness'		
hɛm-rɛ, hɛmɛrɛ	'hundred'		
ʔam-rɛ	'tortoise'		

The sequences of [**ml**] and of [**lm**] also indicate the irregular position of [**m**] in the sonority hierarchy. The following alternative forms show that the [**ml**] sequence is not stable.

		alternative forms
ɲaml-aadɛ	'to lend from'	**ɲalm-aadɛ**
ɗɛm-lɛ	'tongues'	**ɗɛl-lɛ**
pɔɔm-lɛ	'hills'	**pɔɔɓ-ɛ**

The sequence of [**lm**] shows no variation, the sequence [**ml**] does. This confirms the exceptional and less preferred status of [**ml**]. It is possible that the nasal [**m**] can precede the very sonorant [**l**] and [**r**] sounds because it has a more sonorant nature than the other nasals. The alternative forms **ɲamlaadɛ** and **ɲalmaadɛ** 'to lend from' show that metathesis can prevent the less well-formed [**ml**] sequence.

4.5 SYLLABLE CONTACT RULES

The well-formedness conditions describing the sonority hierarchy of the time slots in the syllable motivate a number of sound changes which are called syllable contact rules by Vennemann (1988:50). The syllable contact rules that can be shown to be operative in the Fulfulde of Maasina are described in the following sections.

4.5.1 HEAD STRENGTHENING OF [r]

The trill [**r**] is more sonorant in Maasina than the lateral [**l**] and the nasal [**n**] and therefore the sequences *[**lr**] and *[**nr**] are not permissible. Head strengthening can occur to avoid these sequences. Sometimes the same rule applies when a morpheme final [**r**] is followed by a morpheme initial [**r**], thus preventing the sequence *[**rr**]. The rule of head strengthening is described in a SPE-type structural formula since it is difficult to represent the multi-valued feature of sonority and the syllable structure in autosegmental phonology.

P-rule 19
r -> **d** / C ___
[alveolar]
[less or equally sonorant]

P-rule 19 says that the consonant [**r**] becomes less sonorant in the syllable onset when it is preceded by a consonant that is less or equally sonorant. This rule applies when [**r**] is preceded by [**l**], [**n**] or [**r**] in the underlying structure. The [**r**] changing to [**d**] occurs in the onset or "head" of the syllable, that is why this rule is called head strengthening (Vennemann 1988:13-20). The rule of head strengthening is related to the syllable sonority constraint because it avoids the sequence of a consonant in the coda followed by a more or equally sonorant speech sound in the following onset.

***ɓil**	+	**r**	+	**u**	+	**gal**	> **ɓil-d-u-gal**	'stick to fasten peg on loom'
***wul**	+	**r**	+	**i**			> **wul-d-i**	'be hot with'
***wuul**	+	**ri**					> **ᵐbuul-di**	'bull with white face'
***wor**	+	**ru**					> **wor-du**	'male; thumb'
***ʔɔɔl**	+	**rɛ**					> **ʔɔɔl-dɛ** (**ʔɔɔl-ɛrɛ**)	'yellow'
***janan**	+	**rɛ**					> **janan-ⁿdɛ** (**janan-ɛrɛ**)	'strange'

The change of *[**nr**] to *[**nd**] is further subject to the automatic rule that voiced plosives become prenasalized after a nasal ([**nⁿd**]) in the derivation of the word **jananⁿdɛ** 'strange'. The rule of head strengthening shows a number of complications which are related to the possible forms of the grade A suffixes of the NDE, NDI, and NDU classes because the suffix grade cannot be determined from the surface form of the suffix alone. The fact that the forms **jananɛrɛ** 'strange' and **ʔɔɔlɛrɛ** 'yellow' are identified by the consultants as correct (though rare) forms indicates that the suffix here is most probably a grade A suffix. The underlying consonant sequence *[**rr**] changes to [**rd**] when a stem ending in the consonant [**r**] combines with a grade A suffix -**r**V of the classes NDI, NDE or NDU. This is an indication that the geminate [**rr**] resulting from the assimilation of *[**rl**] has a different status. The geminate [**rr**] which results from the underlying *[**rl**] sequence does not undergo head strengthening. Words with a geminate [**rr**] in Maasina mostly have cognate forms with the sequence [**rl**] in other dialects. The change from [**rl**] to [**rr**] is optional since some words with [**rl**] do occur in Maasina.

cɛɛr-lɛ	'divorces'	
gɛrr-al	'wild partridge'	(FT: **gɛrlal**)
fɛrr-ɔ	'bush with trees'	(FT: **fɛrlɔ**)

The merger of [l] and [r] into [rr] does not occur when there is a morpheme boundary between the [r] and [l] as in **cɛɛr-lɛ**, the plural of **cɛɛr-gal** 'divorce'.

4.5.2 CODA WEAKENING

Coda weakening occurs when an obstruent occurs in the underlying structure of a word in syllable final position (except in some words where this consonant is [ɓ]). This rule repairs ill-formed structures that would violate the sonority constraint (see section 4.4.2). The syllable final segment may not be an obstruent (but it may be a geminate consonant). In other words, an obstruent may not fill the coda position of a syllable unless it is simultaneously linked to the onset of the next syllable. When the syllable is word final, the Maasina dialect does not allow obstruents in syllable final position at all. The constraint is again described in terms related to the syllable structure, because the changes in sonority involved are motivated by the organization of sonority in the syllable.

The coda weakening of obstruents can take different forms. Fricatives that occur morpheme finally become glides in syllable final position. Klingenheben's syllable final weakening rules (see section 4.4.1 above) do occur synchronically in Maasina. The following word derivations show (dialect) internal evidence for the synchronic rule of coda weakening in Maasina.

***hɛs-**	'new'	
kɛ·sɔ	'new'	['O class]
hɛy·rɛ	'new'	[NDE class]
***gaf-**	'millet'	
ga·fɛɛ·lɛ	'sorts of millet'	['DE class]
gaw·ri	'millet'	[NDI class]
***hɔs-**	'step'	
kɔy·ⁿgal	'foot'	
kɔ·sɛ·kɔ·sɛ	'sound from a cow's feet when it is walking'	
ho·su·dɛ	'to make a step, put one foot down'	

Klingenheben takes his evidence for coda weakening from the comparison of dialects. Dialect comparison shows that this rule is productive in Maasina, whereas its occurrence is more exceptional in other dialects.

Maasina	Pulaar	Aadamaawa	
howru		**hofru**	'knee'
foowtudɛ	**fooftudɛ**		'to rest'
ley		**les**	'under'
heyri	**hesiri**	**hesri**	'new' [NDI class]
kɔy^{n}gal		**kos^{n}gal**	'foot'

Not only the fricative [s] but also the palatal obstruents and the palatal nasal change to the more sonorant palatal approximant [y] in syllable final position.

***haaj-**		
haay·rɛ	'stone'	[NDE class]
kaa·jɛ	'stones'	['DE class]
***ɲɛɛɲ-**		
ɲɛɛ·ɲɔ	'craftsman'	['O class]
ɲɛɛy·ɓɛ	'craftsmen'	['BE class]
***yaaj-**		
yaa·ju·dɛ	'to be wide, large'	
^{n}jaay·ri	'plain'	[NDI class]

In Maasina the rule of coda weakening involving the change of fricative consonants to glides in syllable final position operates synchronically. The exceptionless application of the coda weakening of fricatives is an innovation of the Fulfulde dialect of Maasina. The alveolar fricative [s] changes to [y] and the labial fricative [f] changes to [w] in syllable final position. The basic change is that the fricative becomes [+voiced]. The feature [+spread] is delinked in syllable final position, the feature [+voiced] is linked to the underlying fricatives [f] and [w]. The interpretation of [+voiced] fricatives as [y] and [w] follows from other structure conditions.

Some derivations show an alternation that seems to be the weakening of a laryngealized consonant to a nasal in syllable final position.

stem final laryngealized consonant		coda weakening to nasal	
***fiɓ-**			
fiɓ-udɛ	'to tie'	**fim-t-udɛ**	'to untie'
piɓ-ɛ	'knots'	**fimrɛ**	'knot'
***mɔɔɓ-**			
mooɓ-udɛ	'to be compact'	**moom-ɓ-udɛ**	'to be round'
***hiiɓ-**			
hiiɓ-udɛ	'to be old, worn out'	**kiŋ-ka**	'old, worn out' (adj. KA class)

The change from an underlying laryngealized consonant to a more sonorant nasal in syllable final position does occur synchronically in variant forms of the following verb stems which combine with verb focus (VF).

ʔɔ wadu tan	also	**ʔɔ wan tan**	'he only does (it)'
ʔɔ heɓu tan	also	**ʔɔ hɛm tan**	'he only has got (it)'

These verb stems are very frequently used. With less frequently used verb forms, the conjugational suffix expressing verb focus is mostly the vowel final **-u**.

4.5.3 CONTACT METATHESIS

There are a few examples where it can be demonstrated that metathesis has occurred. The metathesis is called contact metathesis because the metathesized consonant sequence has resulted from the contact or combination of a morpheme final and a morpheme initial consonant in the underlying structure which violates the correct order of sonority. A comparison of Maasina words with cognate forms in other Fulfulde dialects shows the occurrence of metathesis in Maasina.

Ringimaaji	Aadamaawa	Maasina	
ranβ-ugɔ	**ranw-ugɔ**	**rawn-udɛ (rann-udɛ)**	'to be white'
ɓalβ-ugɔ	**ɓalw-ugɔ**	**ɓawl-ugɔ**	'to be black'
lɛlwa	**lɛlwa**	**lɛwla (lɛlla)**	'antelope'
lelbi	**lelji**	**lewli (lelli)**	'antelopes'
βolβ-ugɔ	**wolw-ugɔ**		'to speak'
		wowl-udɛ	'to howl'
ɲalβ-ugɔ			'to rise high (of sun)'
	ɲalw-ugɔ	**ɲawl-udɛ**	'to reach zenith'
	ɓolw-ugɔ		'to melt'
	tunw-ugɔ	**tuun-udɛ (tunn-udɛ)**	'to be dirty'

The above forms in the Fulfulde of Ringimaaji and of Aadamaawa contain the sequences nasal-glide and lateral-glide which are not allowed in Maasina. In Maasina metathesis has occurred. The forms in the example below show that the associative extension **-w-** follows the noun stem ***nay** in Maasina without metathesis because the **yw** sequence is well-formed. Segments that are equal in sonority can occur in sequence.

Ringimaaji	Aadamaawa	Maasina	
nayβ-ugɔ	**nayw-ugɔ**	**nayw-udɛ**	'to be old'

The motivation for the occurrence of metathesis is to repair an incorrect sequence of sounds with regard to their sonority. Metathesis can also provide an explanation for the etymologies of a few words that would otherwise have to be postulated with suppletive stems.

	stem final sonorant		metathesis	
ml -> lm	**ɲaam-**			
	ɲam-aa^{n}dɛ	'credit'		
	ɲaml-udɛ	'lend v (to)'	**ɲalm-aadɛ**	'to borrow, take credit'
nw -> wn	**ran-**			
	ran-ɛ	'white cow'	**rawn-udɛ**	'to be white'
lw -> wl	**ɓal-**			
	ɓal-ɛ	'black cow'	**ɓawl-ugɔ**	'to be black'
lw -> wl	**ɲal-**			
	ɲal-ɔɔma	'afternoon'	**ɲawl-udɛ**	'to reach zenith'

There are a few alternative names that show the occurrence of metathesis. The place names **sɛmra** and **sɛrma** were already mentioned (see section 4.4.5). The Fulfulde name **Mayrama** can also be explained by metathesis. This name goes back to the Arabic name for Mary, i.e. **Mariyama**. The form shortens to **Maryama** because a sequence of four light syllables is ill-formed in Fulfulde. The ill-formed sequence ***ry** in the form **Maryama** is subject to metathesis which results in the form **Mayrama**. The following list shows variant forms with and without metathesis.

sɛmra	**sɛrma**	'Serma (place name in Haayre)'
mar(i)yama	**mayrama**	'girl's name'
pii^{n}dal	**piirnal**	'flowering season'
garuwal	**gawral**	'house made of mud or concrete'
kɔrɔwal	**kɔwral**	'bobbin'
ɲamlaadɛ	**ɲalmaadɛ**	'to borrow; to lend'

The plural **garuujɛ** suggests that the form **gawral** resulted from deleting the unstressed vowel [u] in **garuwal** 'stone/mud house'. A similar etymology is proposed for **kɔrɔwal** 'bobbin' with an alternative form resulting from shortening and metathesis **kɔwral/kɔwrɛ** 'bobbin'. Possibly the verb **hawraadɛ** 'to spin' is formed on the basis of the word **kɔwral** 'bobbin' (with vowel assimilation in the stem). The form **pii^{n}dal** may have been derived from an underlying form ***piinral** with the phonological rules of head strengthening (->***piindal**), nasal spreading (->***piin^{n}dal**), and geminate shortening (->**pii^{n}dal**) applying.

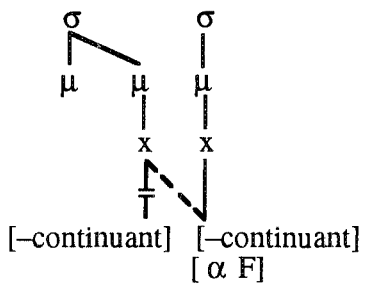
4.5.4 TOTAL ASSIMILATION OR GEMINATION

Another rule that prevents the occurrence of obstruents in the coda of ill-formed syllables is total assimilation to the consonant in the following onset which results in a geminate consonant. A comparison of words derived from the same roots show the underlying forms of the stems in which the last consonant is affected by total assimilation.

	stem final obstruent	gemination	
*tC > CC	**juut-udɛ**		'to be long'
	***ⁿjuut-ⁿdi**	**ⁿjuunⁿdi, ⁿjuuⁿdi**	'long' (adj. NDI class)
	***juut-ⁿgal**	**juuŋⁿgal, juuⁿgal**	'long' (adj. NGAL class)
	***juut-ki**	**juukki, jukki**	'long' (adj. KI class)
	***juut-ɗɔ**	**juuɗɗɔ, juɗɗɔ**	'long' (adj. 'O class)
*tr > rr	**naat-udɛ**		'to enter'
	***naat-rɛ**	**naarrɛ, [narrɛ]**	'entrance of the water'
*ɗr > rr	**tiiɗ-udɛ**		'to be difficult'
	***tiiɗ-rɛ**	**tiirrɛ, [tirrɛ]**	'difficulty'
*ɗn > nn	**hoɗ-udɛ**		'to settle'
	***hɔɗ-n-udɛ**	**honnudɛ**	'to cause to settle'
*gd > dd	**dog-udɛ**		'to run'
	***dog-du**	**doddu**	'course'
*kl > ll	**seek-udɛ**		'to tear'
	***seek-l-udɛ**	***seelludɛ, seeludɛ**	'to tear totally into pieces'
*nr > rr	**won-udɛ**		'to be'
	***won-r-udɛ**	**worrudɛ**	'to be with'
*dn > nn	**ɓad-aadɛ**		'to approach'
	***ɓad-n-udɛ**	**ɓannudɛ**	'to make s.o. approach'
*ɓt > tt	**mooɓ-udɛ**		'to be compact, together'
	***mooɓ-t-udɛ**	***moottudɛ, mottudɛ**	'to be gathered'

The derivations where total assimilation occurs show an ill-formed order of sonority in the underlying structure. The following figure shows the sound change resulting in total assimilation.

P-rule 20



Assimilation of an obstruent to the following consonant is a possible repair rule because obstruents are allowed in syllable final position when they are linked to two time slots (part of a geminate consonant). All examples of total assimilation appear to involve at least one underlying alveolar consonant. Most derivations with this rule are not productive. Total assimilation is only productive in a few adjectives. P-rule 20 does not apply to the sequences [**mn**] and [**rl**] in e.g. **rimnudɛ** 'to cause to give birth' and **cɛɛrlɛ** 'divorces'. Possibly total assimilation does not need to apply when the first consonant is more sonorant than the second. This would imply that [**m**] is more sonorant than [**n**].

4.5.5 CODA DELETION AND COMPENSATORY LENGTHENING

The consonant in the coda is deleted when it is underlyingly the consonant [**h**] or [**ʔ**]. These two consonants cannot occur in the coda. They also cannot follow another consonant. In the following words the stem final glottal approximant [**h**] is deleted in the coda in Maasina.

yah-an	'will go'	**yaa-dɛ**	'to go'
yih-an, (yiy-an)	'will see'	**yii-dɛ**	'to see'

In Maasina the glottal stop and [**y**] alternate sometimes in variant forms of the same word. Both consonants are deleted and compensatory lengthening of the preceding vowel occurs in syllable final position. There are also a number of paradigms that show deletion of the glottal stop [**ʔ**] in the coda in Maasina.

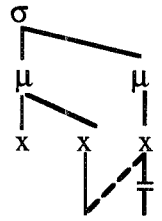
waʔ-i, (way-i)	'looks like'	**waa-dɛ**	'to look like'
wiʔ-an, (wiy-an)	'will say'	**wii-dɛ**	'to say'
yiʔ-an, (yiy-an)	'will see'	**yii-dɛ**	'to see'

An alternation of a vowel with either [**h**], [**ʔ**], or [**y**] is thought to be the result of a phonological rule that is similar to the rule describing the deletion of a syllable final glottal stop. The deletion of the glottal stop is compensated for by the lengthening of the preceding vowel. This has happened in the following singular forms.

hɔɔ-rɛ / kɔh-ɛ	'head'
saa-rɛ / cɛh-ɛ, cah-ɛ, cih-ɛ	'village (not of Fulbe)'
waa-rɛ / bah-ɛ	'beard'
ᵐboori / bohi	'bull: head (front) has different colour'
wɔhɛ / bohi	'cow: head (front) has different colour'
ᵐbɛɛwa / bey, beʔi	'(she)goat'
ⁿgaari / gay, gɛy, gaʔi	'bull; male calf'

The intervocalic glottal stop is deleted in the plural forms **bey** goats' and **gay** 'bulls' which can also occur as **beʔi** 'goats' and **gaʔi** 'bulls' in other dialects. The vowel [**i**] of the plural suffix has fallen into syllable final position and is therefore interpreted as the consonant [**y**]. The consonant [**h**] is deleted and compensatory lengthening of the preceding vowel occurs in the word **ᵐboori** 'bull with different colour head' which is based on a stem ending in [**h**] that occurs in the plural and masculine form of the word. Consonant deletion in the coda almost always results in compensatory lengthening.

P-rule 21 (CVh, CVʔ -> CVV before a syllable boundary)



[α F] [least sonorant]
{ h, ʔ}

It is not yet clear how the rules repairing ill-formed sonority sequences can be formulated in such a way that it is transparent that they affect the features of a segment and the interpretation of the segment as a vocalic or consonantal element. The aim of describing the rules related to sonority here is to show their relation to the syllable structure.

Compensatory lengthening does not occur in case of the shortening of a CVVC syllable to CVV because the aim of the phonological rule is to reduce the weight of the syllable. The deletion of a consonant in the coda of the CVVC syllable prevents this less well-formed syllable structure. The nature of the rule (avoiding overweight) makes compensatory lengthening impossible. Examples of deletion of the final consonant in a CVVC syllable in Maasina involve mostly the first time slot of a geminate prenasalized consonant (a N^nC sequence).

4.5.6 EPENTHESIS OR THE BLOCKING OF VOWEL DELETION?

The most common repair rule to prevent ill-formed syllables is the choice of vowel initial allomorphs.

haɓɓ-id-ii	***haɓɓ-d-ii**	'tied together'
mɔɗ-u-dɛ	***mɔɗ-dɛ**	'to swallow'
haɓɓ-u-dɛ	***haɓɓ-dɛ**	'to tie'
mɔɗ-ɛrɛ	***mɔɗ-rɛ**	'tablet'
haɓɓ-ɛrɛ	***haɓɓ-rɛ**	'bundle'
tɔɔb-ɛrɛ	***tɔɔb-rɛ**	'furrow, esp. for millet'
hin-ɛrɛ	***hin-rɛ**	'nose'
ⁿdaak-iri	***ⁿdaak-ri**	'bull with coloured neck'

This process looks very much like epenthesis. Epenthesis of an intervening vowel could be a possible repair rule to prevent such ill-formed syllable structures. And indeed, epenthesis is often given as an explanation for a -VCV(C) vs. -CV(C) morphophonological allomorphy in the literature on Fulfulde. In this study, however, the epenthetic status of these vowels is called into question. The vowels are presumed to be present in the underlying lexical forms and they can be deleted in certain environments, their deletion is blocked in other environments.

The main argument for this position is that the vowels that are called epenthetic have a range of qualities that are not always predictable from the phonological environment in which they occur. Syntactic or lexical information is necessary to predict the correct quality of many of the so-called epenthetic vowels. Given this state of affairs, it seems more

plausible to reverse the assumption of epenthesis. Instead of giving a rule for the appearance of such a vowel, rules can be stated for the deletion of these vowels in certain phonological environments. The postulation of a vowel in the underlying structure can also explain the examples where such an "epenthetic" vowel does occur even if the well-formedness conditions without this vowel would not be violated. The occurrence of an epenthetic vowel is difficult to explain in such an environment.

The different vowels which are considered to be epenthetic are listed in the following table. The vowels said to be epenthetic in the literature (Klingenheben 1963:16, 188, 192) or anaptyctic (Arnott 1970a:55) are underlined.

vowel quality	*morphemes*	*environment*
assimilating	**ɛ̲rɛ**	Grade A noun suffixes of NDE, NDI, NDU class.
	i̲ri	
	u̲ru	
[i]	**i̲t i̲r i̲d**	Verbal extensions.
	i̲ⁿd i̲n i̲d	
	i̲s i̲ŋkin	
[u]	**u̲**	Active voice participles, id. imperatives, id. infinitives.
assimilating	**a̲ta**	Incompletive conjugational suffixes .
	ɔ̲tɔ ɔ̲tɔɔ	
	ɛ̲tɛ ɛ̲tɛɛ	
	a̲taa	
	a̲taakɔ	
	a̲taakɛ	

The assimilating first vowel occurring in the nominal class suffixes **-ɛrɛ**, **-iri**, **-uru**, the vowel [**u**] occurring in conjugational suffixes of the active voice verbs, the initial vowel of the incompletive conjugational suffixes, and the vowel [**i**] occurring in verbal extensions all occur in similar phonological environments. The reason why it has been claimed that these vowels are epenthetic lies in their distribution. All of the vowels mentioned occur (obligatorily) when the preceding morpheme ends in two consonants (either two different consonants or a geminate consonant) or after a morpheme that ends in a consonant that cannot precede the consonant that follows this so-called epenthetic vowel.

Short unstressed vowels are often deleted unless their deletion would cause an ill-formed syllable structure. The phonological environments where unstressed short vowels can be deleted are the mirror image of the environments for epenthesis. For example, these vowels would not be deleted if their deletion would cause a syllable with a coda with two consonantal time slots, as shown in the words derived from the root ***haɓɓ-** 'tie'.

haɓɓ-i̲d-ii	'tied together'	(verbal extension + completive)
haɓɓ-ɛ̲rɛ	'bundle'	(grade A suffix NDE class)
haɓɓ-u̲-dɛ	'to tie'	(active voice infinitive)
haɓɓ-u̲	'tie!'	(active voice imperative)
haɓɓ-a̲taa	'will not tie'	(incompletive: negative)

These vowels are also not deleted when they prevent the occurrence of syllables with an obstruent in the coda, for example, following the stem final [t] in the words derived from the stem **lɔɔt-** 'wash'.

loot-it-an	'will wash'	(verbal extension + incompletive)
loot-u-dɛ	'to wash'	(active voice infinitive)
loot-u	'wash!'	(active voice imperative)
lɔɔt-ɛtɛ	'will be washed'	(incompletive: passive)
wɔɔt-ɛrɛ	'one'	(grade A suffix NDE class)
woot-uru	'one'	(grade A suffix NDU class)
ⁿgoot-iri	'one'	(grade A suffix NDI class)

However, these vowels are often deleted if deletion does not lead to ill-formed syllable structures, especially when these short vowels are unstressed:

hɛy-ɗ-an	'will be new'	(verbal extension + incompletive)
war-dɛ	'to come'	(active voice infinitive)
war	'come!'	(active voice imperative)
loot-ir-tɛ	'will be washed with'	(incompletive: passive)
hɛy-rɛ	'new'	(grade A suffix NDE class)
hey-ru	'new'	(grade A suffix NDU class)
hey-ri	'new'	(grade A suffix NDI class)

The fact that the deletion is not obligatory is an argument for the analysis of these vowels as being part of an underlying form of the morpheme to which they are always adjacent. The following examples show the so-called epenthetic vowels where their deletion would not cause an ill-formed syllable structure.

won-u-dɛ, wɔnⁿdɛ	'to be'
war-u-dɛ, wardɛ	'to come'

The conclusion is that the so-called epenthetic vowels are not epenthetic but part of the underlying structure. A rule describing the possible deletion of vowels in unstressed open syllables can also describe their distribution because these vowels also occur when no ill-formed syllable or consonant sequence would arise if they were deleted.

The assimilating short vowel occurring in incompletive conjugational suffixes is proposed to be [a] in the underlying structure. When this underlying morpheme ***at** marking the incompletive occurs in the last syllable of the verbal word, the quality of the vowel that appears on the surface is also [a]. The conjugational suffix of the general incompletive has the surface form **-an** (**-at** or **-ay** in other dialects). The short vowel occurring in incompletive conjugational suffixes is different from the other vowels discussed here in that it cannot be deleted when it occurs directly after the verb root. It is deleted only when it occurs after a verbal extension.

short unstressed vowel in incompletive verbs

tɛf-ata	'will search for'	(relative incompletive)
war-ataa	'will not come'	(negative incompletive)
yin-ɔtɔ	'will swim'	(middles incompletive)
nan-ɛtɛ	'will be heard'	(passive incompletive)

deletion of short unstressed vowel in incompletive verbs

jaŋⁿg-in-ta	'will teach'	(relative incompletive)
fill-an-tɔ	'will tell to'	(middle incompletive)
nan-ir-tɛ	'will be heard with'	(passive incompletive)

Any unstressed short vowel (here the underlying vowel [**a**]) in open syllables often undergoes assimilation to the vowel in the following syllable. This rule of regressive vowel assimilation is also described by Endresen (1993a).

There are a number of words where a variant form occurs with a vowel [ə] between two consonants that violate the sonority hierarchy. Sometimes they are assimilated to the next vowel, as is the case with the following variant forms noted in Maasina.

wurwudɛ, wurəwudɛ, wuruwudɛ	'to churn'
ⁿjuumri, ⁿjuuməri, ⁿjuumiri	'honey'

These synchronic alternations show that some of the vowels that are easily deleted may historically have an epenthetic origin. The assimilating vowel in the grade A suffixes of the NDE, NDI, and NDU class could have arisen historically from this same epenthetic vowel [ə] which subsequently assimilated in vowel quality to the vowel in the next syllable.

The vowels discussed here occur always after geminate consonants and sometimes after CVVC syllables, but they can also occur where their deletion would not lead to ill-formed structures. A considerable amount of syntactic and lexical information is needed to predict their correct vowel quality. Therefore the distribution of Ø (zero) / V (vowel) is explained by a vowel deletion rule. The epenthetic status of the vowels discussed here is rejected.

The fact that the deletion of an unstressed vowel in an open syllable cannot take place if otherwise an ill-formed syllable structure would occur provides another tool to show the marginal status of the CVVC syllable. The following examples show that the deletion of the active voice marker [**u**] in infinitives usually does not occur following a CVVC morpheme, thus preventing the occurrence of the less preferred CVVC syllable structure.

wardɛ	'to come'	***war-**
waddɛ, waɗudɛ	'to make'	***waɗ-**
yaadɛ	'to go'	***yah-**
ⁿdaardɛ, ⁿdaarudɛ	'to look for'	***ⁿdaar-**
tiiddɛ, tiiɗudɛ	'to be difficult'	***tiiɗ-**
hoorudɛ	'to protect'	***hɔɔr-**
fiirudɛ	'to fly'	***fiir-**
waasudɛ	'to lack'	***waas-**

From the syllable contact rules described here, it should be clear that the well-formedness of syllables is not determined by the prescribed syllable templates alone but also by the correct sequence of sonority value of the segments within the syllable. The rules related to sonority make a further distinction between the behaviour of place features and manner features. Manner features change due to rules related to sonority. Sonority is independent of place features. A few minor changes of place always co-occur and depend on manner changes, e.g. **s-y**, **s-c**, and **f-p**. Total assimilation changes the mapping of both place and manner features of the segment in the coda.

4.6 STRESS

4.6.1 PREVIOUS ANALYSES

The different descriptions of the place of word stress in the literature are rather contradictory. It has been generally assumed in the English and French literature on Fulfulde that stress falls on the first syllable of a word. The quotes from Noye (1974:11) and Arnott (1965:78) below are representative of this opinion.

> C'est presque toujours la première syllabe qui est accentuée, sauf dans certaines formes verbales où l'on remarque un déplacement de l'accent ... (Noye 1974:11)

> In nearly all words of more than one syllable the salient syllable is the first, but there are a few exceptions to this rule, ... (Arnott 1965:78)

The exceptions that Arnott mentions are some numerals, adverbs, question words, and verb forms. Some examples of such words without stress on the first syllable (according to Arnott) are given below.

numerals:	**cappánďe**	'tens'
	joowéego^{ʔ}o	'six'
	teemérre / teemeďďe	'thousand(s)'
adverbials:	**ammáa**	'but'
	korii	'hopefully'
interrogatives:	**ndeyé**	'where'
	moyé	'who'
	kiyé	'which' [qw. of KI class]
negative verb forms:	**mi-naŋ^{n}gáaka**	'I was not caught'
	mi-noddáayi-mo	'I didn't call him'
	mi-^{ʔ}anndáa-mo	'I don't know him'
	mi-noddátaa	'I won't call'

The position taken in the present study does not agree with the rule that places the stress on the first syllable of a word in Fulfulde. Stress indicated in the examples of Arnott and Noye is indicated with an acute accent because I think they wrongly equated high pitch with stress. I note stress with a grave accent because stress is most often marked by a lowering in

pitch. It appears that Arnott, Noye and others who follow the assumption that stress is word initial were mislead by the peculiar realization of stress in Fulfulde.

Pitch plays a role in the realization of stress in Fulfulde, but stress is not always realized with a high pitch. Word stress in Fulfulde is realized by an increase in amplitude and also by a change in pitch. The direction of the change in pitch, i.e. the lowering or the raising of the pitch, is determined by the intonation pattern of the sentence.

For example, a declarative sentence has a general declination of pitch. In a declarative sentence the word that receives the focus (phrasal stress) has its stressed syllable realized with a relative high pitch. But the words that are not in focus have their stressed syllable realized with a lowering in pitch that exceeds the gradual lowering of the declarative sentence. When a word is pronounced in isolation it receives the intonation of a declarative sentence. The result is the following tonal pattern on the words **rawàa^{n}du** 'dog', **danèejum** 'white', and **jaŋ^{n}gìrdɛ** 'school'.

The tonal patterns of the words **rawàa^{n}du** 'dog', **danèejum** 'white', and **jaŋ^{n}gìrdɛ** 'school' show an initial syllable that is higher in tone than the following two syllables. But it is the amplitude that marks a stressed syllable. In relation to the intonation pattern, any large drop of pitch indicates a stressed syllable. What determines the place of stress is the syllable structure of the word.

An interpretation of high pitch as stress leads to the rule of stress assignment as described by Arnott and Noye. However, the stress in these words falls on the second or penultimate syllable. Noye (1974:11) and Arnott (1965:78) wrongly place the accent on the first syllable in the following examples:

Noye		Arnott	
ráwaa^{n}du	'dog'	**ráwaa^{n}du**	'dog'
dáneejum	'white' ['DUM]	**jáŋ^{n}girde**	'school'

This study agrees with Klingenheben (1963:4-5, 321) who puts the stress in the word **rawáa^{n}du** 'dog' on the penultimate syllable. He marks stress with an acute accent. Klingenheben states the following about stress assignment.

> Die Betonung, d.h. der dynamische Akzent oder Starkton, liegt bei mehrsilbigen Fulwörtern häufig auf der vorletzten Silbe,... (Klingenheben 1963:4)*

The following examples of Klingenheben show the correct stress assignment.

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* The stress of Fulfulde words consisting of more than one syllable is frequently placed on the penultimate syllable.

rawáa^{n}du	'dog'
laamíiɗo	'chief'
jum^{ʔ}áareɛ	'Friday'

Klingenheben enumerates some exceptions to his rule.

oohó	'yes'
mhm̀	'yes'
masín	'very much'
o waráay	'he hasn't come'
ʔúsoko	'welcome'
tém^{m}buɗugo	'to be naked'

Klingenheben explains some of the exceptions by syllable weight. He states that the anti-penultimate can be stressed when the penultimate syllable is an open syllable with a short vowel (i.e. a light syllable). This explains the stress on the first syllable in **ʔúsoko** 'welcome', but it does not explain the position of the stressed syllable in the other exceptions.

McIntosh (1984:20) is the first to arrive at an accurate description of stress placement in nouns. She uses the structure of the syllable to predict the correct assignment of stress in nouns.

> In nominals, [stress] generally occurs on the last non-final CVC or CVV syllable. In the absence of such a syllable, the initial syllable of the nominal is stressed, regardless of its structure. (McIntosh 1984:20)

McIntosh gives examples like **kacéccereʔen** 'the people of Kaceccere' where the heavy syllable (i.e. CVC or CVV) is not the penultimate syllable and where the stress is "pushed back" to the first heavy syllable that precedes the penultimate syllable. McIntosh (1984:82) is more reluctant to give a rule for stress assignment in verbs.

> In listening to verbal complexes, it is tempting to search for a stressed syllable, which can then be neatly marked in the transcription. In the event, such a search proves difficult, and, I suspect, futile. For the fact is that since vowel length is phonemic in Fulfulde, a long-vowelled syllable often sounds "stressed" to the ear - or at least to the English ear. Yet closer examination proves that there is always one, or more than one, high-pitched syllable in the complex, which often does not sound "stressed" at all. (McIntosh 1984:82)

This quote demonstrates clearly that equation of stress with high pitch has complicated the correct description of rules for stress assignment. Stress is realized as a change in pitch, not necessarily as a high tone, and amplitude plays an important role in its realization. The direction of the tonal change depends on the intonation.

McIntosh was probably right in hearing stress on the long vowels in a conjugated verb form even when those syllables did not contain a high pitch. This would confirm the

analysis proposed here for stress assignment in Fulfulde: stress is assigned to the last heavy syllable in a word. If there are no heavy syllables the stress falls on the first syllable of the word. The last syllable in nouns is extra-metrical. The extra-metricallity of the last syllable in nominals means that this syllable is not counted, i.e. it never receives stress. These rules (further developed in section 4.6.2) can explain the placements of stress on nouns which have it, according to Arnott and Klingenheben, mainly on the first or on the penultimate syllable albeit a large number of exceptions. Arnott and Klingenheben mark stress with an acute accent. The stressed syllable according to my proposal is underlined. My proposal correctly predicts the placements of stress in their exceptions.

Arnott: first syllable stressed + exceptions

nominals:	**débbo**	'woman'
	cappánďe	'tens' (noun)
	teemérre	'thousand' (noun)
	jooweegoʔo	'six'
verbals:	**ammáa**	'but'
	koríi	'hopefully'
	ʔoďón	'durative'
	mi-nanngáaka	'I was not caught'
	mi-noddáayi-mo	'I didn't call him'
	mi-ʔanndáa-mo	'I don't know him'

Klingenheben: penultimate syllable stressed + exceptions

nominals:	**rawáandu**	'dog'
	jumʔáare	'Friday'
	témmbuďugo	'to be naked'
verbals:	**o waráay**	'he hasn't come'
	masín	'very much'
	ʔúsoko	'welcome'

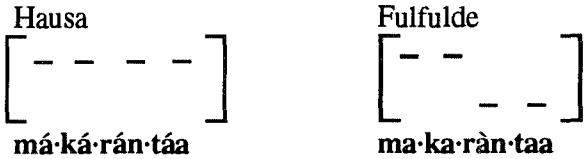
A number of exceptions (of Arnott and others) to the stress assignment rules can only be explained when it is assumed that Arnott, Noye and others wrongly put stress on a syllable with a relative high pitch that did not have stress itself but was followed by a stressed low pitch syllable. In the following example Arnott assigns stress one syllable too early to the syllable preceding the one where pitch lowering occurs (in a declarative sentence).

mi-noddátaa 'I won't call' rather: **mi noddatàa**

It is not clear why Arnott puts stress on the last syllable in the interrogatives **ndeyé** 'where', **moyé** 'who', and **kiyé** 'which' [KI class]. Perhaps the rising intonation of a question has something to do with it.

In the phonetic experiment on the length of vowels (see Appendix 2) the measurements show that vowels are relatively longer in stressed syllables. Vowel length is phonemic in Fulfulde but stress does influence its phonetic realization. This distinction confirms the stress assignment in words as proposed in this study.

Another argument for the present analysis of stress assignment and its realization (as pitch lowering in a declarative sentence) was given by a consultant from 'Yola in Nigeria. The word **makarantaa** 'school' is pronounced in the following different ways in Hausa and in Fulfulde.



The word **mákárántáa** has high tones throughout in Hausa. In Fulfulde this loan-word receives a tonal pattern like H H L L. The lowering of the pitch is placed exactly on the syllable that receives stress in Fulfulde because stress falls on the last heavy syllable (the last syllable being extra-metrical). The rules for assigning stress in Fulfulde are given in the following section.

4.6.2 STRESS ASSIGNMENT RULES

Stress assignment in the Fulfulde of Maasina is described with the parameters set out by metrical phonology (Goldsmith 1990:169-216, Hayes 1986).

parameters for the metrical structure in Fulfulde*:
1. last syllable is extra-metrical in nominals
2. left-headed feet
3. quantity sensitive feet
4. unbounded feet
5. right-headed word level structure

The rules deriving the metrical structure according to these parameters predict that the stress falls on the last heavy syllable (before the last syllable in nominals) or else on the first syllable.

A quantity-sensitive foot is a foot where the prominent syllable is a heavy syllable, the other syllables in the foot are light syllables. A foot is built on a heavy syllable that is the head of the foot. Directionality is not important because the foot in Fulfulde is quantity sensitive and left-headed, it follows that a foot consists of a heavy syllable and all the light syllables that follow it. A left headed foot is a unit of syllables where the first is prominent, it receives (secondary) stress. If the foot is left headed and there is no heavy syllable in a word, then the first light syllable of this word is the head of the foot. An unbounded foot is a foot that can contain more than two syllables. A right headed word level structure implies that the last foot in a word receives the word stress.

The fact that the last syllable is extra-metrical in nominals only is interesting because this last syllable mostly contains the noun class suffix. The hypothesis (cf. Sapir 1971, Doneux 1975) is that the noun class suffix evolved historically from a weak demonstrative

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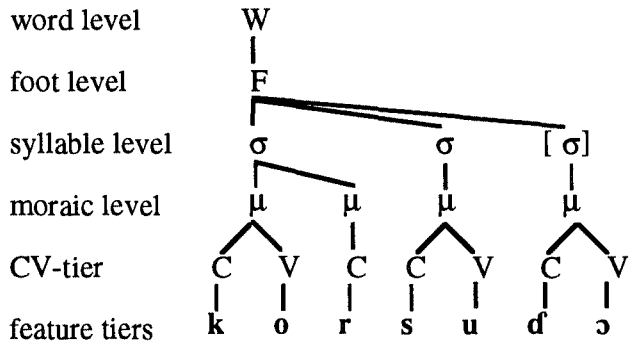
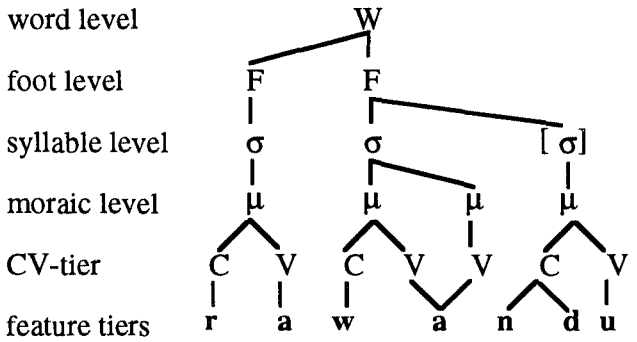
* Bruce Hayes [personal communication] has given me some suggestions for these Fulfulde parameters during a phonology conference at the Max Planck Institute, Nijmegen, September 1986 for which I want to thank him here. All misinterpretations and mistakes are of course my own.

or definite article following the noun. The fact that the syllable in which the noun class suffix occurs does not count in the assignment of stress is perhaps a trace of the fact that once there was a word boundary between the noun stem and the noun class suffix. Perhaps the stress assignment rules can be taken as another argument for the hypothesis that Fulfulde or a language stage before Fulfulde once had noun class prefixes, not suffixes. An extra-metrical syllable is attached to a previous foot, it doesn't receive stress because only the head of a foot can receive stress. Extra-metricallity is indicated by square brackets around the extra-metrical syllable: [σ].

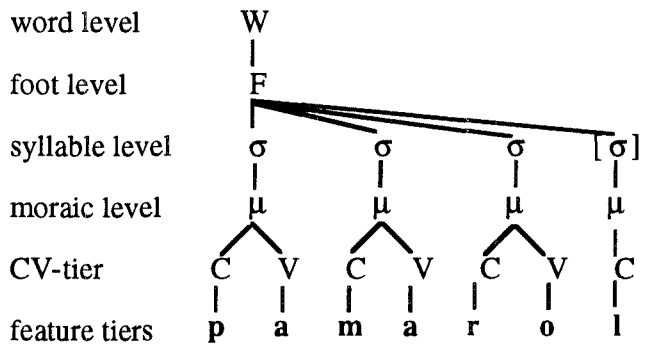
The metrical structure can be built on top of the syllable structure described above in section 4.1. It should be noted that a heavy syllable is defined as a syllable containing two morae and a syllable that is light contains only one mora. The proposed combination of the XMS-model extended with an explicitly derived CV-tier and the arboreal metrical system makes it possible to maintain this definition in the model. A heavy syllable is branching. The following figure shows the metrical structure of the word **kòrsuɗɔ** 'cherished one'.



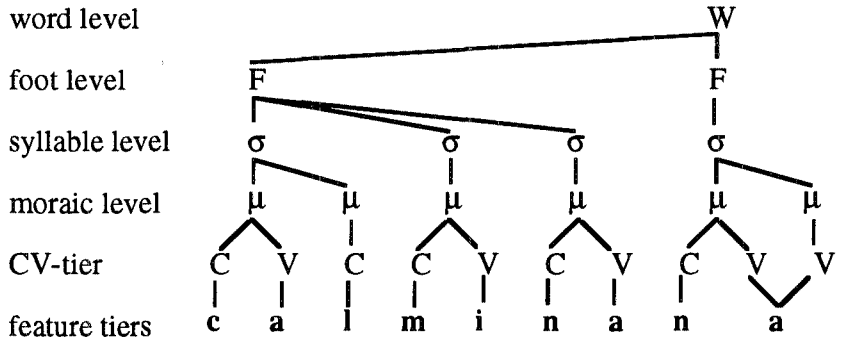
The stress falls on the first syllable in the word **kòrsuɗɔ** 'cherished one' because it is the last heavy syllable (which is not word final). The metrical structure of the word **rawàaⁿdu** 'dog' is given below.



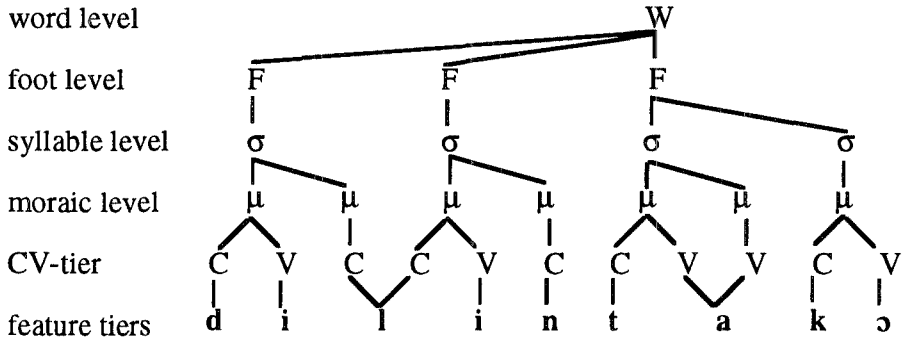
The word **rawàaⁿdu** 'dog' shows that the word stress falls on the head syllable of the last foot in the word. There is no heavy syllable preceding the extra-metrical last syllable in the metrical structure of **pàmarol** 'small', hence it consists of only one foot.



The word **pàmarol** 'small' shows that the last syllable in nominals does not count in the assignment of stress. The last syllable **rol** containing the noun class suffix **-ol** is heavy but the stress falls on the first syllable because there are no heavy syllables before this extra-metrical syllable. The fact that the last syllable is not extra-metrical in verb forms is shown by the metrical structure of **calminanàa** 'you should greet for'.



The word stress falls on the heavy syllable of the last foot in the verbal form **calminanàa** 'you should greet for'. The metrical structure of **dillintàakɔ** 'can't move' shows penultimate stress.



The word **dillintàakɔ** 'can't move' shows that stress on the negative morpheme **-aa-** is not lexical but follows from the fact that this long vowel belongs to the last heavy syllable of the verbal word.

The syllabic and the metrical structure of a word are derived from the time-tier and the feature specifications linked to it. The derivation goes (in the above pictorial representations) from bottom to top. The lexicon only contains information on the linking

of features to time slots. The structure at the CV-tier, the moraic or μ-level, the syllabic or σ-level, the foot or F-level, and the word or W-level are all derived by rules.

4.7 INTONATION

Unlike most of its neighbouring African languages, Fulfulde is not a tone language. Fulfulde does make use of intonation patterns. This is clearly stated by Arnott:

> Fula is an intonational rather than a tonal language, in the sense that the main outlines of the pitch contours of a sentence are determined by the type of sentence, rather than by the tonal characteristics of individual words and complexes. Arnott (1970a:62)

Intonation patterns are placed on phrases and sentences, usually depending on the positions of (phonological or semantic) stress. An intonation pattern can carry an independent specific meaning. The relative consistent meaning of a certain intonation pattern is sometimes difficult to define. The meaning of intonation often has a function in the conversational discourse. Certain patterns can indicate that the speaker gives someone else permission to speak. Intonation can reveal certain attitudes. For example, the "insecurity pattern" in English indicates that the speaker wants to express (generally) her (or his) uncertainty. The fact that the uncertainty pattern is used more by women than men is an indication that such a pattern also can confirm social roles, rather than indicating that the speaker is indeed more uncertain about the statement. An intonation pattern can be used to express the illocutionary force of an utterance such as the fact that it is a statement, a command or a question (see Bolinger & Sears 1981, Cruttenden 1986).

Arnott (1965) discusses a number of intonation patterns. Many of them are linked to verbal morphemes that do not occur in Maasina. The most important questions that have to be asked in order to describe the intonation patterns in brief are the following:

1) What intonation patterns do occur (what is their form and meaning)?
2) How are these intonation patterns anchored on the words in a sentence?

Only two intonation patterns are discussed here: the pattern of the declarative sentence (section 4.7.1) and the pattern of the yes-no question (section 4.7.2). The latter is the same as the intonation of a topic phrase. The typical intonational behaviour of monosyllabic a-tonic words is described in section 4.7.3. The influence of a focused constituent on the intonation of an utterance is discussed in section 4.7.4.

4.7.1 DECLARATIVE PHRASE

Neutral declarative phrases have an intonation contour where pitch lowering occurs on each stressed syllable. The following neutral declarative sentence shows the downward steps in pitch on the stressed syllables.

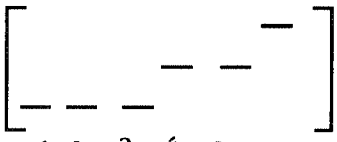
dèb·bɔ soo·dìi di·sàa·rɛ
woman buy-COMPL wrapper
'The woman has bought a wrapper.'

The last syllable in a declarative sentence has the lowest pitch. The example shows that unstressed syllables generally copy the pitch of the preceding syllable.

4.7.2 YES-NO QUESTIONS AND TOPIC PHRASES

A yes-no question is a question that asks for the affirmation or negation of a statement. A topic phrase always precedes another declarative clause. It forms a constituent about which the following statement is made. The topic forms a phrase by itself which usually ends in a topic marker. The intonation pattern of yes-no questions and topic phrases are identical and can be described in the following way:

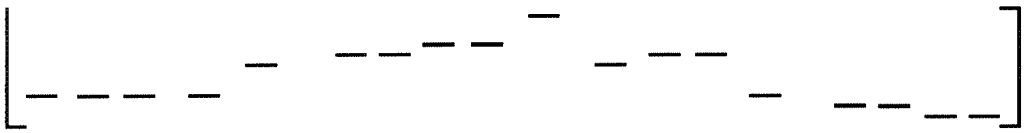
Topic phrases and yes-no questions have an intonation pattern which is almost the mirror image of the declarative pattern. This pattern is characterized by a rising contour, where pitch raising occurs on each stressed syllable and also on the phrase final syllable. The stressed syllables which trigger rising of pitch in such an utterance are marked with an acute accent.



súudu ʔamín ley to
house our in there
'In our (excl.) house?'

In the above question the pitch rises on the stressed last heavy syllable of the possessive form **ʔamín** 'our (excl.)' and on the last syllable in the phrase **to** 'there'. The last syllable in such a phrase is higher in tone than the rest of the syllables even if that syllable normally does not receive word stress

The same pattern is found in the topic phrase **faa sɔ mi jaŋⁿgii sɛɛɗa sɛɛɗa duu** 'and also even if I have read a little bit' (the speaker was talking about not understanding the Arabic writing of the Koran, having visited the Koran school not long enough to understand Arabic).



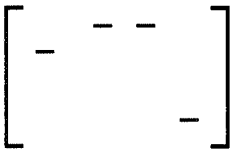
fáa sɔ mi jaŋⁿg-íi séɛɗa séɛɗa dúu, mi faam-atàa sànnɛ sànnɛ
even if I read-COMPL very little TM, I understand-N.INCOMPL very much
'Also even if I have read a little bit, I do not understand very much.

The topic marker **duu** ca be translated as 'also, on top of that', being the last syllable in the topic phrase it gets the highest tone. The topic phrase is followed by a declarative phrase with an intonation pattern as described in section 4.7.1.

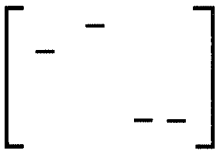
4.7.3 THE A-TONIC WORDS

Arnott (1965:81) describes the pronouns, pronominal concords, and a number of other monosyllabic words as "a-tonic" words. In Arnott's description of intonation this means that such words are never accented. And indeed the pronouns and pronominal concords are often lower in pitch compared to the pitch of the following word in declarative phrases, yes-no questions, and topic phrases, especially when these a-tonic words occur phrase-initially. A-tonic words copy the pitch of the preceding syllable when they are preceded by another word in the same phrase. The a-tonic words **sɔ** 'if' and **mi** 'I' copy the pitch of **faa** 'even' in the topic phrase **faa sɔ mi jaŋⁿgii** 'even if I have read' (see section 4.7.2). The pitch of the phrase initial subject pronouns **mi** 'I' and **mɔ** 'he/she/it' in the following examples of declarative sentences is lower than that of the word which immediately comes after these pronouns.

mi wa·rìi
'I have come'



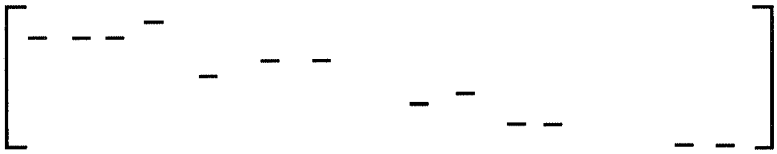
mɔ wa·ra·tàa
'He won't come.'



mɔ wa·ràa·li
'He hasn't come.'

This intonation pattern is probably responsible for the erroneous placement of stress on the penultimate syllable by Arnott in **warátaa** 'won't come'.

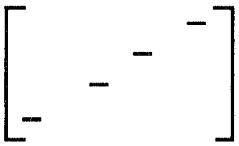
The following sentence consisting of a topic phrase followed by a declarative clause demonstrates both the relevant intonation patterns and the behaviour of a-tonic words.



ʔá·du·na né, yɔ súu·du ⁿdu ma·hàa·ki sàn·nɛ
world TM COP house CL build-N.M.COMPL well
'Concerning this world, it's a house that is not built well.'

The highest pitch in the topic phrase falls on the last syllable, on the topic marker **ne**. The highest pitch in the declarative sentence is on the stressed syllable of the word **súudu**

'house' which is followed by a relative clause. The pitch lowers on the stressed syllable of the words **mahàaki** 'is not built' and **sànnɛ** 'very well'. The a-tonic words are **yɔ** (copula) and **ⁿdu** (relative pronominal concord). The a-tonic words **yɔ** and **ⁿdu** are lower in pitch than the following verb stem.

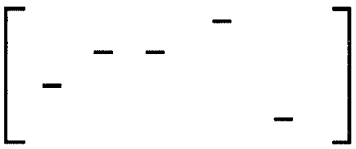


ʔa faa·màa·li
You didn't understand?'

The subject pronoun **ʔa** 'you' is lower in pitch than the verb that it precedes (see also **mi** in the example **mi warìi** 'I have come'). The pitch rises on the stressed penultimate syllable in **faamàali** 'don't understand' and on the last syllable of the same word because of the yes-no question intonation pattern.

4.7.4 FOCUS

Focus also has an important influence on the intonation pattern. Focus is marked intonationally by assigning a high pitch (the highest in the phrase) to the stressed syllable of the focused word.



ⁿdu dɛ̀b·bɔ máw·ɗɔ
'It is of an <u>óld</u> woman.'

The focus and phrasal stress in the last example is on the first syllable of **máwɗɔ** 'old'. This syllable receives the highest pitch in the sentence because of focus. The a-tonic subject pronoun **ⁿdu** (here in a non-verbal sentence) receives a pitch that is lower than that of the following word (see section 4.7.3). The last syllable in the word **mawɗɔ** is the syllable lowest in pitch in the declarative sentence.

Focus emphasizes a constituent in a sentence. Focus has consequences for the choice of the verbal conjugation and for the syntactic structure of the sentence in question. Focus is mostly located in the initial word position of the sentence, as is the case in the following example of a declarative sentence with focus. Focus has no distinctive intonational realization when it falls on the first word in the phrase, which is the most common position for a focused constituent.

dɛ́b·bɔ sòo·di di·sàa·rɛ
woman buy-R.COMPL wrapper
'It's the <u>woman</u> that bought a wrapper.'

There are a number of words that attract phrasal stress because they are inherently focused. Focus is indicated by an acute accent because it is realized as high pitch on the stressed syllable. Examples of words with inherent focus are the following:

fuʔ:	**yimɓɛ fúʔ**	'<u>All</u> people, everybody.'
fay:	**fáy huuⁿdɛ**	'Nothing, not <u>even</u> a thing.'
nii:	**midʃɔ níi winⁿda**	'I am <u>exactly</u> now writing.'
buy:	**ʔana ʔooldʃi búy**	'It is <u>very</u> yellow.'
dʃɔn:	**ʔɛɓɛ dʃɔ́n duka**	'They are <u>here</u> arguing.'

The focused word receives the highest pitch in the above phrases.

The examples in the sections 4.7.1 to 4.7.4 show the intonation patterns of the declarative phrases and the yes-no questions and topic phrases. More research is necessary on the other intonation patterns that occur in Fulfulde. The question word questions can have the same pattern as declarative sentences with focus on the question word, but sometimes the yes-no question pattern is also found there. The types of intonation discussed here do not describe patterns that convey attitudes. It is possible that there are different intonations for a neutral command and an angry command. Hopefully the above rules give some tools for the description of other patterns as well. The statements about stress indicate that the phonetically distinct features of stress must be searched for in amplitude. Changes in pitch are also an indication of stress.

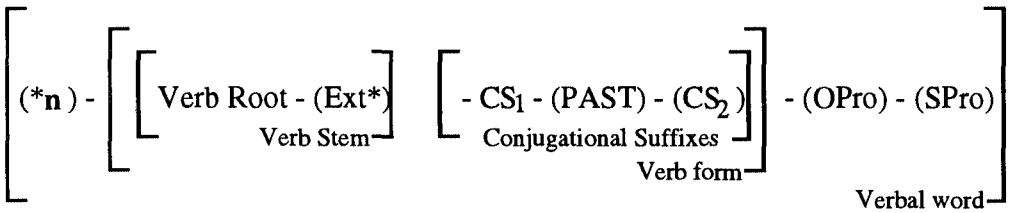
Part II

Word formation

Chapter five
Verbs, adverbs and particles

5.1 INTERNAL STRUCTURE OF THE VERB

A verb in Maasina, as in the other dialects of Fulfulde, consists minimally of a verb stem (VS) and a conjugational suffix (CS). The minimal verbal word only consists of the verb form. The verb form is the combination of the verb stem with the conjugational suffixes. The verb stem (VS) consists of a verb root (VR) to which a number of extensions (Ext*) can be attached. The conjugational suffixes are fused forms of different verbal markers expressing tense, mood, aspect, discourse related meanings (focused, focalizing), and polarity (negative, affirmative). They follow the verb stem. The conjugational suffix (CS) is the form that resulted from the fusion of the conjugational verbal markers, without the past tense marker. The past tense marker (PAST) occupies a distinct place within the conjugational suffixes. The verb form can also be inflected for person and number. When the subject is plural, a morpheme (***n**) precedes the verb form, causing the first consonant to be prenasalized. The prenasalized series of the first consonant of the verb also occurs when the subject pronoun follows the verb form. The verbal word maximally consists of the verb form and additional pronominal inflection. The following figure shows the order of (fused and plain) morphemes in the inflected verb form.



Conjugational suffixes

In the literature, the conjugational suffixes have been described as single morphemes. In fact the conjugational suffixes are a set of complex portmanteau morphemes. Historically and probably even synchronically, the conjugational suffixes consist of several morphemes. Only the verbal marker that indicates past tense (PAST) is one indivisible morpheme. Sometimes, the past tense marker seems to follow the conjugational suffix, and in some cases it has the appearance of an infix, breaking up the conjugational suffix into two parts, (CS_1) and (CS_2). The latter is shown in the following example. Position (CS_2) is only filled when the past tense marker behaves like an infix.

mi	**jaab-a-<u>nòo</u>-ki**	**mɔ-ʔ**
I (SPro)	answer-CS_1 (N.M.COMPL)-PAST-CS_2 (N.M.COMPL)	him (OPro)-FG

'I had not answered him.'

The further analysis of the conjugational suffixes is discussed in section 5.5.

Separate pronouns and pronominal affixes

The most commonly occurring word order in Fulfulde is SVO. This order is also followed when subject and object are pronouns. Most pronouns are not part of the verbal word, they are considered to be separate words. Subject pronouns normally precede the verbal word. Object pronouns always follow the verbal word. These subject and object pronouns have a special status in the sense that they can never attract stress, and neither do they influence the placement of stress on the verbal word. As described in section 4.7, primary stress in verbal words falls on the last heavy syllable, when no heavy syllable is present it falls on the first syllable. The stressed syllables are underlined in the examples of this section.

ʔacc-ɛn-ɛ̀ɛ̀ kam hakkɛ
leave-Ext (DAT)-CS (IMPpl) me (OPro) sins
'Forgive me.'

The position of stress in the previous sentence shows that the object pronoun **kam** 'me' (a heavy syllable) is not considered to be part of the verbal word, because if it were, it would have received stress.

mi tìl-ɛkɛ-nɔ ʔɛ huttudɛ lɛlla
I (S Pro) end-CS (M.COMPL)-PAST with skin-INF antelope
'I had finished skinning the antelope.'

Here the stress falls on the first syllable of the verbal word **tilɛkɛnɔ** 'had finished' as it consists of only light syllables. The stress placement indicates that the subject pronoun **mi** 'me' is not the first syllable of the verbal word, because it would have received stress in that case. All pronouns preceding the verb form do not influence the stress placement in the verbal word. Most pronouns following the verbal word show the same lack of influence on the placement of stress in the verb. These pronouns are considered to be separate words

Some pronominal forms do influence the stress placement and trigger ATR-harmony in the verbal word, they are considered to be pronominal affixes. These pronominal affixes occur only in combination with certain conjugational suffixes. In combination with the subjunctive and relative verb forms, the subject can follow the verb form. This morphological order of verb form and subject pronoun (SPro) within the verbal word is called inversion (Klingenheben 1961). Inversion is also marked by prenasalization of the first consonant of the verbal word (see section 3.1.4.). Only certain subject pronouns can be inverted, these are the subject pronouns of the 2nd person singular (**-aa** or **-ɗaa**), the 2nd person plural (**-ɔn** or **-ɗɔn**), the 1st person plural inclusive (**-ɛn** or **-ɗɛn**), and in the case of the relative verb forms also the 1st person singular (**-mi**). When inversion of the subject pronominal affix occurs, only one pronominal object affix can follow the verb form and precede the subject pronominal affix. Only the 2nd person singular (**-maa-**) or the 3rd person singular (**-moo-**) can occur in this position. The pronominal affixes are clearly part of the phonological verbal word, because they can influence the stress assignment within that word.

kɔ ⁿjim-at-àa ?
what sing-CS (INCOMPL)-you (SPro)
'What will you sing?'

pati ⁿgar-àa
don't come-CS (SUB)-you (SPro)
'You should not come.'

pil-am-màa-mi
tell-Ext-you (OPro)- I (SPro)
'I tell for you (a story)'

kɔ ʔanⁿd-ir-mòo-mi lebbi tati
that know-Ext-him (OPro)-I (SPro) months three
'It's three months that I know him.'

In the imperative, incompletive, and subjunctive verb forms of active verbs without inversion, the 1st person singular object pronoun (**-am**) and the 2nd person singular object pronoun (-ɛ) can be attached as pronominal affixes to the verb form. Together with the last consonant of the verb form, they form the last syllable of the verbal word.

hɔkk-àm ⁿdiyam
give-CS (IMPsg)-me (OPro) water
'Give me water!'

mi hɔ̀kk-ɛt-ɛ ɗam
I (SPro) give-CS (INCOMPL)-you (OPro) it (OPro)
'I will give it to you.'

The locative marker or locative copula is not considered to be part of the verbal word. It is a separate word, which can precede the verb. Although the locative marker is a morpheme expressing aspect (duration) the locative is not considered to be one of the verbal markers. This is contrary to the opinions expressed by Arnott (1970a:279-289) and McIntosh (1984:77-81), who do consider this marker part of the verb form (for further discussion see section 5.6.1.1). The locative can also merge with the subject pronoun to form the locative pronoun, which is a separate (although unstressed) word.

suka ʔana jàl-a-ʔ
child LOC laugh-CS (SUB)--FG
'The child is laughing.'

mi-ɗɔ jàl-a-ʔ
I (SPro)-LOC laugh-CS (SUB)--FG
'I am laughing.'

The order and form of subject, object and locative pronouns are discussed in more detail in the discussion of the different verb conjugations (5.4) and in the section on pronouns (8.2).

Final glottality

Certain verbal conjugations are characterized by final glottality at the end of the verbal word. Final glottality is only realized when the verbal word occurs before a pause at the end of the sentence (see section 2.6.2). The imperative, subjunctive, and relative verb forms are marked by final glotallity in Maasina. The verbal word can only be extended by the past tense **nɔ** and by certain pronouns, in which case the final glottality is carried by the past tense morpheme or by the affixed pronoun.

ʔɔmɔ ʔanⁿd-aa-ʔ
he/she+LOC know-P.R.COMPL-FG
'He is known.'

ʔɔmɔ jood'-i-nɔɔ-ʔ
he/she+LOC sit-M.R.COMPL-PAST-FG
'He sat.'

ʔattey ⁿgadd-u-noo-mi-ʔ
tea bring-R.COMPL-PAST-I (SPro)-FG
'It's tea that I have brought.'

Final glottality is also found on concordial pronouns. Object pronouns which are discourse referents are marked by the absence of final glottality with the exception of the long form of the 2nd person singular object pronoun **maaʔ** which is marked by final glottality (Arnott 1970a:232), even when it follows verbal forms which are not marked by final glottality.

mi jaab-a-noo-ki maaʔ
I (SPro) answer-N.M.COMPL you (OPro)-FG
'I had not answered you.'

The paradigms of verbal words combining with object pronouns in Gombe (Arnott 1970a:232) show that the final glottality is related to the object pronoun and not to the verbal conjugational category. This is another argument to separate the object pronoun from the verbal word.

	Completive	Subjunctive
1 sg.	**ʔo wall-ii yam**	**ʔo wall-a yam**
1 pl. excl.	**ʔo wall-ii min**	**ʔo wall-a min**
3 sg.	**ʔo wall-ii d'um**	**ʔo wall-a d'um**
2 sg.	**ʔo wall-ii ma** (short form)	**ʔo wall-a maaʔ** (long form)
'O class	**ʔo wall-ii moʔ**	**ʔo wall-a moʔ**
'BE class	**ʔo wall-ii ɓeʔ**	**ʔo wall-a ɓeʔ**
NGEL class	**ʔo wall-ii ⁿgelʔ**	**ʔo wall-a ⁿgelʔ**
'DUM class	**ʔo wall-ii d'umʔ**	**ʔo wall-a d'umʔ**

The final glottality is indicated in the examples, it is not taken into account in the description of the distribution of the different forms of the conjugational suffixes.

The order of elements in verbal words can only be shown by comparing a number of examples, since all the possible slots in a verbal word are not filled at the same time. The morphemes that can occupy the different slots in a verbal word are discussed and exemplified in the following sections. First the verb roots are discussed, followed by a short introduction to the distinction between active, middle and passive verbs (5.2). Then an overview of all the possible verbal extensions that occur in Maasina is given (5.3). Subsequently, the conjugational suffixes are first described as units, conform the tradition in the literature on the Fulfulde verb system (5.4). Then some hypotheses on the analysis of the underlying structure of the conjugations will be explored, on the basis of the semantic

grouping of the conjugations (5.5). This chapter ends with a discussion of some minor word classes which are linked to the verb, for example by their function as modifiers (5.6).

5.2 VERB ROOTS

Verb roots in Maasina usually have a CV(V)C shape . There are a number of verb roots that have a CVCC form. Although they are common, they are also suspect as the last consonant will often prove to be an old verbal extension.

Allomorphy of the verb root

The changes that a verb root can undergo involve all segments of its structure. The initial consonant of a verb root can be subject to consonant alternation. This has been discussed in detail in section 3.1.4. The vowel of the verb root can undergo assimilation as discussed in section 2.9. The most dominant vowel assimilation occurring in Fulfulde is ATR-harmony. A few verb stems containing the vowel [**a**] undergo frontness assimilation when they precede a morpheme with the vowel [**i**]. The vowel in the verb root is frequently shortened when a following consonant initial morpheme causes the occurrence of the less preferred CVVC syllable structure. The last consonant of the verb root can change, especially when it occurs in a syllable final position. The rules that change syllable final consonants are discussed in section 4.5. Examples of the changes in the verb root mentioned above are given below.

initial consonant alternation:	**mi haal-ii**	'I have spoken'	**ɓɛ kaal-ii**	'they have spoken'
vowel shortening:	**weer-udɛ**	'to camp'	**wer-n-udɛ**	'to install'
ATR-vowel assimilation:	**hɛɛw-aa**	'it is not much'	**heew-i**	'it is much'
frontness assimilation:	**mi yah-an**	'I will go'	**mi yɛh-ii**	'I have gone'
assimilation final consonant :	**kɔ juut-ii**	'it is long'	**kɔ juun-n-i**	'it makes long'

Meaning of the verb root and the conjugational suffix

For a correct application and interpretation of the conjugational suffixes, the verbs must be classified semantically. The temporal structure and the possible argument structure of the action or process expressed by a particular verb has its consequences for the choice of conjugations with which it can combine, and for the readings of the meaning of the verb forms. As an example the completive verb forms of the action verb **wardɛ** 'to come' and the inchoative verb **jɔɔɗaadɛ** 'to sit' are compared.

sɔ ɓɛ war-ii	**sɔ ɓɛ ⁿjooɗ-ikɛ**
if they come-COMPL	if they sit-M.COMPL
'If they have come...'	'If they sit (are seated)...'

In combination with the completive conjugational suffix, the verb **warii** 'have come' signifies that the action of coming has been completed. When the verb stem **jɔɔɗ-** 'sit, get seated' combines with the completive marker in the form **ⁿjooɗikɛ** 'sit', the verb expresses a present state of sitting. This is because the completive indicates that the change of state, the precise moment of getting seated is completed, 'they sit', perhaps 'they are seated' is a better paraphrase of the Fulfulde meaning.

Meaning of the verb root and voice

The possible argument structure of the verb is important for the possibility of a verb to combine with the active, middle and passive voice. Voice is also expressed in the conjugational suffixes. All conjugational suffixes have different forms for the different voices. Semantically the derivation of active, middle and passive verbs is a process that shows a lot of similarity with the derivation of an extended verb stem. One semantic similarity is the fact that extensions can also change the argument structure of the verb. There are verb stems that can combine with all three voices, there are also verb stems that can combine with only one of the voices.

The middle voice has received some attention in the literature (cf. Abu-Manga & Jungraithmayr 1988, Arnott 1956). The middle voice implies that the action or process expressed by the verb affects the subject. In Fulfulde, verbs stems that combine with the middle voice are verbs which can signal (1) actions of grooming or body care, (2) actions of moving the body without a change in overall position, (3) actions describing a change in body posture, (4) actions in which the agent entity is normally also a recipient or beneficiary in the verbal action, (5) actions or states in which the relationship among two participants is usually or necessarily mutual or reciprocal, (6) actions describing a self-induced motion of an animate entity along a path in space, (7) actions or states that describe an emotional reaction, (8) mental states or processes, (9) spontaneous events, and (10) actions where the subject of the verb corresponds thematically to the object of the verb stem without the middle voice marker (Kemmer 1993:16-20). Middle voice verbs mark the infinitive with the suffix **-aadɛ**.

(1)	grooming or body care	**ɓɔɔrn-aadɛ**	'to get dressed'
(2)	nontranslational motion	**dejjin-aadɛ**	'to keep still, not move'
(3)	change in body posture	**lɛl-aadɛ**	'to lie down'
(4)	indirect (self-benefactive) middle	**lan^{n}d-aadɛ**	'to ask'
(5)	naturally reciprocal events	**gans-aadɛ**	'to converse'
(6)	translational motion	**dam^{m}b-aadɛ**	'to move to wedding house'
(7)	emotion middle	**ŋɔɔrŋ-aadɛ**	'to grieve, to be sad'
(8)	cognition middle	**miij-aadɛ**	'to think, to ponder'
(9)	spontaneous events	**laat-aadɛ**	'to become, to change into'
(10)	passive, impersonal, facilitative middle	**ʔudd-aadɛ**	'to be open(-able)'

Kemmer also lists semantic verb classes that express emotive speech actions, other speech actions with emotional overtones, and the logophoric middle as possible categories expressed by the middle voice. These verb classes, however, do not occur in the middle voice in Fulfulde.

Passive voice verbs are verbs where the subject has the thematic role of the patient, i.e. the subject undergoes the action expressed by the verb. Passive verbs can be transitive. This is shown by the examples **yɛɛw-ɛɛdɛ** 'to miss' and **hill-ɛɛdɛ** 'to be interested' found in the Maasina data. Passive voice verbs mark the infinitive with the suffix **-ɛɛdɛ**.

lɔɔt-ɛɛdɛ	'to be washed'
ɓɔɔrn-ɛɛdɛ	'to be dressed'
fiy-ɛɛdɛ	'to be beaten'
yɛɛw-ɛɛdɛ	'to miss' (e.g. one's family, one's village)
hill-ɛɛdɛ	'to be interested in' (e.g. the city, farming)

All verbs that do not belong to the passive and middle voice verbs are active voice verbs. At first sight this group looks like a large residual category. The active voice verbs signal that the subject of the verb is the agent of the action expressed by the verb, or that the subject is the patient when the verb expresses a process. Active voice verbs mark the infinitive with the suffix **-dɛ** or **-udɛ**.

yaa-dɛ	'to go'
jal-udɛ	'to laugh'
ʔan^{n}do^{n}dir-dɛ	'to know each other'
wojj-udɛ	'to be red'
mawn-udɛ	'to be big'

Some verb stems can combine with all voices. There are semantic restrictions on the voice potential of a verb stem. An action verb that occurs in the active voice must allow for an agent in its argument structure. Verbs that only combine with the active voice are often intransitive. The semantic interpretation of the active, middle and passive voice markers has consequences for the argument structure of the verb.

loot-udɛ	'to wash' (someone)	S = agent	O = patient
lɔɔt-aadɛ	'to wash oneself'	S = agent and patient	
lɔɔt-ɛɛdɛ	'to be washed (by someone)'	S = patient	
ʔudd-udɛ	'to open' (something)	S = agent	O = patient
ʔudd-aadɛ	'to be open(-able)' (of something)	S = patient	
ʔudd-ɛɛdɛ	'to be opened (by someone)'	S = patient	

The argument structure of the verb stem **lɔɔt-** allows the subject to be agent, patient, or both at the same time. The facilitative passive meaning of the middle voice verb **ʔudd-aadɛ** 'to be open(-able)' does not allow for the agent to be expressed. Sometimes there is a dialect difference in the voice used by a certain verb stem. For example, the verb stem **miil-** 'think' expressing a mental event is **miildɛ** 'to think' in the active voice in Maasina, but **miilaadɛ** 'to think' in the middle voice in Fuuta Tooro. More research is needed to describe fully the meaning and use of the three voices in Fulfulde.

5.3 EXTENSIONS

The verbal extensions in Fulfulde are many. There have been valuable studies on the verbal extensions in different Fulfulde dialects by Arnott (1970a:333-370), Endresen (1994), Fagerli (1993, 1994), Gaden (1913:60-66), Gnalibouly (1990), Gnalibouly & Koval (1982), Gottschligg (1990), Labatut (1982a:151-164, 223-225), Mohamadou (1985:53-100), Ouane

and Koval (1976), Sow (1966), Sylla (1982:115-120), De Wolf (1985b, 1986a, 1986b, 1987, 1991), and others. This voluminous literature still leaves numerous issues undiscussed, e.g. concerning the semantic content of the individual extensions and the syntactic consequences for the verb phrase when a verb stem combines with these extensions.

This section gives an overview of the verbal extensions that occur in the Maasina dialect. A comparison of the Maasina forms with cognate forms in other dialects is sometimes needed to discuss a verbal extension, and to put the Maasina data in the wider context of Fulfulde. The description differs in some places from what is available in the existing literature. For example, the reversive extension with the form **-t-** or **-it-** is treated as one polysemic form (following Gaden's analysis), rather than as a number of homophonous extensions that occur under many different names (contra Arnott 1970a, De Wolf 1985b). The denominal associative extension **-w-** is distinguished here from the inchoative extension **-ɗ-** or **-iɗ-** (confirm Gaden 1913, contra Arnott 1970a a.o.). Some very rare extensions which are not often considered in the literature are also listed, like the intensive extension **-l-**, the extensive extension **-is-/-s-**, the brusque extension **-ɓ-**, and the resultative extension **-ⁿd-/-iⁿd-**. They were noted before by Gaden (1913:65-66), Klingenheben (1963:204, 214), and Mohamadou (1985:78-86) in other dialects.

The reduplication of a verb stem is a type of stem formation that differs from an extended verb stem in that a reduplicated verb stem consists of two identical verb roots, whereas an extension has a distinct form of itself. Reduplication is treated together with the extensions because both are processes of derivation resulting in a verb stem that is the basic form to which inflection is added. The reduplicated verbs in the Maasina dialect show a clear additional meaning of "not succeeding" and the meaning of the reduplicated verb form is therefore called the evasive, its meaning is clearly different from the repetitive-intensive meaning given to reduplicated verbs in other descriptions (Klingenheben 1963:212, Arnott 1970a:362, Mohamadou 1985:88). It is not clear whether this difference is caused by dialect variation.

The middle voice and the passive voice forms of the same verb root are not treated as verbal extensions, even though this process is on the boundary between derivation and inflection. The semantics of middle and passive verb derivations is not fully predictable, and the passive and middle voice derivations are not productive: they cannot occur just on any verb. But the fusion of the markers for voice with the verbal inflection (the conjugations) makes it practically impossible to treat them as verbal derivational extensions, they are too intermingled with the verbal inflectional conjugations. The marking of voice is discussed in section 5.2.2. There are very productive extensions like the altri-locative and the dative extensions which are almost inflectional. The verbs that combine with these extensions are usually not put in the lexicon because their meaning is very predictable, so the divisions derivation vs. inflection, extensions vs. conjugation, and semantic predictability vs. unpredictability do not always coincide in Maasina verb forms.

Before describing the individual extensions, the following list will give the terms used for the verbal extensions in this thesis, a short indication of their meaning between square brackets, followed by the forms under which they occur in Maasina.

(rare extensions:)

ASS	associative	[be like]	*ɥ > **-w-**
INCH	inchoative	[become]	**-ɗ-**, **-d-**
EVAS	evasive	[try without success]	reduplication
INT	intensive	[intensely]	reduplicated final C (*-ʔ-)
EXHA	exhaustive	[exhaustively]	**-l-**
BRU	brusque	[brusquely]	**-ɓ-**
PART	partitive	[a little]	**-is-**, **-s-**
RES	resultative	[achieve]	**-i^{n}d-**, **-^{n}d-**

(more productive extensions:)

REC	reciprocal	[each other]	**-o^{n}dir-**
SIM	simulative	[pretend]	**-iŋkin-**
REV	reversive	[back, again]	**-it-**, **-t-**
CAUS	causative	[cause]	**-in-**, **-n-**
COM	comitative	[together, all]	**-id-**, **-d-**, **-ɔd-**
CIRC	circumstantial	[how, with what, where]	**-ir-**, **-r-**, **-ɔr-**
ALT	altri-locative	[elsewhere]	**-ɔy-**
DAT	dative	[for, on behalf of]	**-an-**

The extensions are ordered partly according to how they are ordered when they co-occur in one verb, partly according to their frequency, starting with the most rare extensions and the extensions that are closest to the verbal root, going to the most frequent and productive extensions that are furthest away from the verbal root.

Up to three verbal extensions are found in one verb root in the Maasina data. The distance of the extension vis-à-vis the root has an influence on the form of the extension. The first extension that follows the verb root is mostly shortened, i.e. it consists of only the consonant. This shortening does not occur if the omission of the vowel would cause ill-formed sequences. So after stems ending in two consonants or a consonant that cannot precede the consonant of the extension, the first extension following the verb root keeps its underlying vowel. When an extension follows in second or third place, it always has its full form, i.e. it consists of a vowel and a consonant. The extensions which have only one form consisting of one consonant, are only found directly following the verb root.

In the literature the vowel [i] occurring in many of the extensions is often called epenthetic. In this study the vowel [i] is considered to be part of the verbal extension that can be omitted in a few contexts. This is because there is no phonological conditioning of its precise vowel quality, which is always [i]. In the Gombe dialect (Arnott 1970a:249), the vowel [u] can also occur in the context of the reversive extension **-ut-** , but this vowel [u] can be explained as the result of vowel assimilation of the underlying unstressed short vowel [i] to the vowel [u] in the last syllable.

maɓɓ-ut-u 'Open up!' [Gombe]
open-REV-IMPsg
maɓɓ-it-in 'Open up, uncover!' [Maasina]

In Maasina, the allomorph **-ut-** is not attested. The imperative of verbs with an extension combines with a morpheme **-in**. A verbal extension is never followed by the active voice marker **-u** in Maasina. The active voice marker **-u** does however occur in the imperative in Gombe when the stem final consonant cannot occur syllable or word finally. In the following sections examples of verbs combining with the different extensions will be given.

5.3.1 ASSOCIATIVE *ɥ

The associative verbal extension, ***ɥ**, is realized as **-w-** in Maasina. It is found in only a few verbs . In the literature on other dialects this extension is usually cited as an irregular form of the "denominal" extension **-id-** (here called the inchoative extension) (Klingenheben 1963:187, Labatut 1982a:224, Mohamadou 1985:65-67, Arnott 1970a:339). Only Gaden (1913:66) lists the extension **-w-** separately, as an unproductive and rare extension. The associative extension is indeed rare, it combines only with a few noun stems to form inchoative verbs that signal the association to a particular semantic feature of the noun stem from which the verb stem is derived. The associative extension is also important in the formation of Grade B nouns (see sections 6.1.3 and 6.2.2). The following examples are the only verbs that combine with the associative extension in Maasina.

ran-	+ *ɥ >	**rawnudɛ**	'to be(come) white'
ɓal-	+ *ɥ >	**ɓawludɛ**	'to be(come) black'
wɔd-	+ *ɥ >	**wojjudɛ**	'to be(come) red'
nay-	+ *ɥ >	**naywudɛ**	'to be(come) old'
ɲal-	+ *ɥ >	**ɲawludɛ**	'to go out late in the day, be at the middle of the day'

Both the forms of the verbs and the meanings need further explanation. First the phonological changes that occur will be described, then a further semantic analysis of the associative derivation will be given.

The form of the verbs with the associative derivation are more regular in the eastern dialects. Their forms in the Ringimaaji dialect are given for a phonological comparison. In the Ringimaaji dialect the associative extension ***ɥ** is realized as **-β-** and it follows the verb root. The following examples are verbs with the associative extension in Ringimaaji.

ran	+ β >	**ranβugɔ**	'to be white'
ɓal	+ β >	**ɓalβugɔ**	'to be black'
nay	+ β >	**nayβugɔ**	'to be old'
ɲal	+ β >	**ɲalβugɔ**	'to rise high (of the sun)'

In Maasina the approximant [**w**] cannot occur following the less sonorant consonants [**r**] or [**l**]. Metathesis occurred to prevent an ill-formed consonant sequence. In Maasina the metathesis does not occur in the verb **naywudɛ** 'to be(come) old', because a consonant sequence [**wy**] does not violate the sonority hierarchy. The metathesis is confirmed by the comparison with the form in the Ringimaaji dialect. The fricative [**β**] is less sonorant than [**r**] and [**l**]. The associative extension **-β-** can remain in its position following the verb root ending in the consonants [**r**] or [**l**] without violating the sonority hierarchy. The underlying

nominal roots can be constructed by comparing the verb with existing nouns derived from the same stem. The noun stems on which these verbs are based are given below:

noun		feature
ran-ɛ	'white cow' (address term)	"white"
ɓal-ɛ	'black cow' (address term)	"black"
wɔɗ-ɛ	'red cow' (address term)	"red"
ɲal-aa^{n}dɛ	'day'	"daylight"

The associative extension derives verbs only from noun stems. The associative extension ***ɥ** differs from the inchoative extension ***-iɗ-** described below which derives verbs from nouns, but also from adjectives (contra Mohamadou 1985:67, 71). The hypothesis is that the verbs are derived from the noun stems given above, expressing a resemblance with these nouns according to the following formula for the associative extension.

N + ASS (***ɥ**) --> V [inchoative]
|
"be(come) associated with a salient feature of N"

Something that becomes red, receives the feature red, which is associated with (the skin of) red cows. The adjectives expressing colour terms are derived from the cow names that are characterized by the colour of the skin of the cow (see section 8.13), which is morphologically indicated by the presence of the NGE class marker, associated with cows. The stem ***wɔɗ-** 'red (cow)' is a nominal stem, as in **wɔɗ-ɛ** 'red cow (address term)'. The hypothesis is that the verb is derived from the noun stem ***wɔɗ-**, used to name a red cow, even if the NGE class marker is not present in the verb stem **wojjudɛ** 'to be(come) red'. The laryngealized stem final [**ɗ**] and the palatal labial [**ɥ**] of the associative extension merged into the geminate consonant [**jj**].

The verb **ɲawludɛ** 'to be daylight' is derived with the associative extension from the same stem ***ɲal-** found in the noun **ɲalaa^{n}dɛ** 'day' and in the verb **ɲalludɛ** 'to pass the day'.

The derivation of the verb **naywudɛ** is semantically more complicated. The semantic link between the morphemes ***nay** found in the word **nayi** 'four' and the suffix **-ɛ** of the NGE class referring to cows and the verb **naywudɛ** 'to be old' is further discussed in section 8.1 on adjectives. The hypothesis is based on the image of a cow with four calves, that is already a bit worn out, and thus provided a metaphorical image for "old".

nay-w-udɛ	'to be old'	[infinitive]
nay-ɛɛ-jɔ	'old person'	[adjective 'O class]
nay-ɛɛ-wɛ	'old cow'	[adjective NGE class]
nay-i	'four'	[numeral]

The link of this verb with a metaphorical image related to cows is very dominant. This may seem strange, but it would perhaps be more strange if no metaphors relating to cows were

to be found in the language of the Fulbe society where herdsmanship is so central in the ideology and the economics of its people.

5.3.2 INCHOATIVE *id

The inchoative extension forms verbs from adjectival stems and from noun stems. Most verbs which combine with the inchoative extension are however derived from adjectival stems following the formula given below.

Adj. + INCH (***id**) --> V [inchoative]
|
"become Adj."

The form of the extension ***-id-** can be shortened to **-d-** following the verb root immediately unless the result would be an ill-formed consonant sequence. If the form of the extension is **-d-** then the infinitive form is **-udɛ**, if the form of the extension is **-id-** then the form of the infinitive is **-iddɛ** or **-in^{n}dɛ**, i.e. ***id + *dɛ**, i.e. a repetition of the extension followed by the infinitive marker. The repetition of the extension prevents the sequence of three unstressed light syllables (see section 4.2.2). This is shown in the following examples of adjectival stems combining with the inchoative extension.

***ʔɔɔl-**	+ ***id** > **ʔoold-udɛ**	'to be yellow'
***fam-**	+ ***id** > **famdudɛ, fand-udɛ**	'to be small'
***fur-**	+ ***id** > **furd-udɛ**	'to be grey by dirt'
***hɛs-**	+ ***id** > **heyd-udɛ**	'to be(come) new'
***nuur-**	+ ***id** > **nuurd-udɛ**	'to be(come) bright, radiant'
***ŋar-**	+ ***id** > **ŋard-udɛ**	'to be(come) beautiful'
***rim-**	+ ***id** > **rimd-udɛ**	'to be(come) noble'
***faŋk-**	+ ***id** > **faŋkid-iddɛ**	'to be(come) ugly'
***lɔbb-**	+ ***id** > **lobbid-in^{n}dɛ**	'to be(come) good, nice'
***lugg-**	+ ***id** > **luggid-in^{n}dɛ**	'to be(come) deep'
***ɓutt-**	+ ***id** > **ɓuttid-in^{n}dɛ, ɓuttid-iddɛ**	'to be(come) thick, big'

There are a few noun stems that combine with the inchoative extension.

dɔm-ka	'thirst'	**dom-d-udɛ**	'to be(come) thirsty'
gɔɔ^{n}g-a	'truth'	**gon-d-udɛ**	'to be(come) realistic; be right'

The following formulation is proposed for the derivation of these verb stems combining a noun stem with the inchoative extension.

N + INCH (***id**) --> V [inchoative]
|
"be(come) with N"

The paraphrase "to be(come) with thirst" indicates the semantic derivation of the verb **ɗomɗudɛ** 'to be(come) thirsty'. Likewise, the verb **gonɗudɛ** 'to be(come) true' can be paraphrased as "to be(come) with truth".

5.3.3 EVASIVE: REDUPLICATION

The evasive verb stem is formed by reduplication of the verb stem. Often the reduplicated verb stem also combines with the reversive extension **-t-**. Contrary to previous views expressed in the literature (Klingenheben 1963:212, Arnott 1970a:362, Mohamadou 1985:88), repetition is not the most important semantic information expressed by the reduplicated verb stem. The repetition is expressed with the **-t-** extension. The fact that the action expressed in the verb stem is repeated is a consequence of the unsuccessful performance of the verb in the first place. This can be attested in the following examples of reduplicated verb forms, compared with the verbs from which they are derived. The verbs listed in this section are the only examples with reduplicated verb stems found in the data of the Maasina dialect.

ɓulɓultudɛ	'to bubble up out of the sand (of water)'	**ɓuldɛ**	'to run (of water)'
ferfertudɛ	'to walk around, without destination'	**ferdɛ**	'to migrate'
firfirtudɛ	'to flap about, to learn to fly (of birds)'	**fiirdɛ**	'to fly'
dardarnudɛ	'to slow down to listen, spy or wait'	**daraadɛ**	'to stop'
tartartudɛ	'to struggle to prevent the falling off (of clothes)'	**taardɛ**	'to wrap'

A very illustrative example of the evasive meaning expressed by reduplication is the verb **firfirtudɛ** 'to flap about' derived from the verb stem **fiir-** 'to fly'. The reduplicated verb **firfirtudɛ** expresses the efforts of young birds, flapping with their wings, trying to fly. The fact that they do not (yet) succeed in flying makes repetition of the movement necessary. The repetition of the action is expressed by the reversive extension **-t-** in the same verb. Likewise, the verb **tartartudɛ** 'to struggle to prevent the falling off (of clothes)' is derived from the verb **taardɛ** 'to encircle, wrap in clothes' with the reversive extension **-t-** forming the verb **taartudɛ** 'to de-wrap clothes, to undress'. The reduplicated verb expresses the repetitive plucking, trying to hold on to one's clothes, to prevent them from falling off (from the shoulders). It is paraphrased as an action of unsuccesful repetitive efforts to dress and undress.

To sum up, the evasive extension expresses the trying and retrying of the action expressed in the single verb stem without achieving the goal of that action. This extension usually combines with reversive **-t-** that indicates repetition (in e.g. **firfirtudɛ** and **tartartudɛ**). The "unsuccessful, unattained goal" semantic aspect expressed by the reduplication of the verb stem is called the evasive extension. The following formula describes the formation of the evasive extension.

```
V -->   V + V (+ t)
        |     |
        "try V (repeatedly), without succeeding"
```

There are some reduplicated verb stems where the meaning of the single stem has not been traced. They are given below.

nan-	>	**nannanⁿdɛ**	'to be left-handed'
dam-	>	**damdamtudɛ**	'to go back and forth; to stamp (one's feet) on one place'
far-	>	**farfartudɛ**	'to burst out in anger'
gɔl-	>	**golgoltudɛ**	'to tremble heavily, shiver'
ŋur-	>	**ŋuruŋurdɛ**	'to peep, to squeak (of mice)'

The verb **nannanⁿdɛ** 'to be left-handed' occurs without the reversive extension **-t-** The verb is possibly derived from the adjectival stem ***nan-** 'left'. The evasive extension is possibly chosen to express the negative image about left-handedness as unsuccessful.

5.3.4 INTENSIVE *ʔ

The intensive extension is formed by the gemination of the stem final consonant. The change of a stem final single continuant into a non-continuant geminate suggests that the underlying consonant of this extension is a glottal stop. The hypothesis is that the extension marked by stem final consonant gemination is not a reduced form of the reduplication of the verb stem, but rather an assimilation to a morpheme of the form ***ʔ**, resulting in a [-continuant] geminate consonant.

The addition of the intensive extension to a verb stem results in a range of semantic changes. Klingenheben (1963:212-213) describes the gemination of the final consonant of the verb root as a reduced form of the reduplication of the full verb root, implying that both verb stem derivations have the same iterative/intensive meaning. In addition, he states that the extension that is formed by a final reduplicated consonant (-CC-) often has a causative meaning. And Klingenheben (1963:200) suggests that a reduplicated final consonant is an older form of the causative. The intensive extension indeed occurs frequently in combination with the causative extension **-in-**. The following examples are verbs with an extension consisting of final consonant gemination (CC) in Maasina that are also cited by Klingenheben in his description of Aadamaawa.

fejjudɛ	'to split (wood)'	**fɛj-**	'split (wood)'
fuɗɗudɛ	'to begin, to start'	**fuɗ-**	'come up, rise'
torrudɛ	'to bother, to trouble someone'	**tɔr-**	'ask, beg'
wiccudɛ	'to sprinkle, to make wet with drops'	**wis-**	'sprinkle water'
luttudɛ	'to deny authority'	**luut-**	'deviate, disobey'

The extension with the final consonant gemination is considered to be different from the verb stem reduplication. The extension will be called the intensive extension, although it is a provisional hypothesis about the meaning of this extension. A verb like **torrudɛ** 'to bother, to trouble, to tease' can be interpreted and paraphrased as "asking/begging intensely". The verb stem **luut-** 'disobey' could express a single event of disobedience, while the verb **luttudɛ** 'to deny authority', implies a permanent and therefore more intense state of disobedience. The verb **fuɗudɛ** 'come up (of grass), rise (of the sun)' expresses a natural event: the moment the grass or the sun appears on the horizon, whereas the same

stem in combination with the intensive extension **fuɗɗudɛ** 'to begin, to start' expresses a conscious effort of a person to commence a process. The tentative formula for the intensive extension formed by gemination of the stem final consonant is given below.

```
V + INT (*ʔ) -->  V
                  |
                  "V intensely"
```

The meaning of the extension formed by stem final consonant gemination is not always clear. In a few verbs, given in the examples below, the translation equivalents of both the stem ending in a single consonant and the stem ending in a geminate consonant do not show an apparent difference in meaning.

ɗilludɛ	'to sneeze'	**ɗiiludɛ**	'to sneeze'
fejjudɛ	'to split (wood)'	**fejudɛ**	'to split (wood)'
hiɗɗudɛ	'to be old, worn-out'	**hiiɗudɛ**	'to be old'
ʔilludɛ	'to sneeze'	**ʔiil-**	'sneeze' (Z)
ʔubbudɛ	'to bury'	**ʔuw-**	'bury'
hippudɛ	'to turn over (recipient)'	**hif-**	'turn over' (Z:G-A)
yoppudɛ	'to leave behind, abandon; let'	**yof-, yoof-**	'leave, liberate, abandon'(Z)
hoocudɛ,		**hoos-**	'collect; give, present' (Z)
hooccudɛ	'to collect what was lost; give presents to a guest'		

Examples of their usage will help distinguish some of these verb forms. The assumption is, however, that the translation equivalents are too rough and that further semantic research will reveal a difference in meaning.

In Maasina the geminate consonants in the verb forms in the following examples are also thought to be derived from roots ending in a single consonant. When the stem ending in a single consonant is not attested in Maasina, the source was often found in Zoubko (1980). This source is indicated with a (Z) between parentheses, sometimes followed by an abbreviation of the dialect in which the example is attested. If there is no such indication, both verb stems have been attested in Maasina. The following similar looking verb forms are possibly also examples of this final geminate extension.

jaɓɓ-aadɛ	'to welcome'	**jaɓ-udɛ**	'to accept, to receive'
hedd-udɛ	'to be left, to remain'	**heed-udɛ**	'to be located, to belong'
ɓill-udɛ	'to press, push, oppress'	**ɓil-dɛ**	'to hang, suspend'
dabb-udɛ	'to pass the cold season'	**daw-dɛ**	'to travel'
waŋŋ-ɛɛdɛ	'to be hateful'	**waŋ-ɛɛdɛ**	'to be hated'
hecc-udɛ	'to be fresh'	**hɛs-, heyɗudɛ**	'new, to be new'
tapp-udɛ	'to castrate; beat'	**taf-udɛ**	'to forge'
dejj-udɛ	'to be silent'	**deʔ-**	'stop, cease'(Z)
dupp-udɛ	'to burn, roast'	**duf-**	'crush' (Z:FJ)
hamm-udɛ	'to worry, be concerned'	**haam-**	'wring, knead'(Z)
hepp-udɛ	'to be impatient, irritate o.s.'	**heef-**	'pluck, scratch' (Z)

saɗɗ-udɛ	'to be poor'	**saɗ-**	'be rare, lack' (Z)
wecc-udɛ	'to change'	**wes-**	'winnow, sive, shift'
wann-udɛ	'to calve'	**wan-, waan-**	'foal' (Z)
jabb-udɛ	'to put millet grains in earth'	**jaw-**	'come out of a hole' (Z:FJ)
tepp-udɛ	'to throw (shuttle between warp threads)'	**tef-**	'intervene' (Z)

The verb **saɗɗudɛ** 'to be poor' could be paraphrased as "to be in an intense state of lacking things", derived from the verb stem **saɗ-** 'lack'. The verb stem **saɗ-** 'lack' expresses the lack of one particular entity at one particular time, whereas **saɗɗudɛ** 'to be poor' expresses a more intense state of lacking basic things. Sometimes the intensive extension changes the argument structure of the verb stem, and it can also have an additional causative meaning. The causative meaning is only found in a few deverbal derivations with this extension. The verb **heddudɛ** 'to remain, to be left' could be paraphrased as "to cause to be located (in the same place)" derived from the verb **heedudɛ** 'to be located, to belong'. The verb **waŋɛɛdɛ** 'to be hated' seems to express a state where something or someone is hated because of a particular dislike by someone else. When the passive verb with the intensive extension **waŋŋɛɛdɛ** 'to be hateful' is used, the hatefulness seems to be an inherent, more intense feature of the hated subject.

There are also a number of verb stems with a geminate consonant that are derived from a noun stem ending in a single consonant. The denominal derivations with the intensive extension are listed below.

niɓɓ-udɛ	'to be dark'	**nim-rɛ / niɓ-ɛ**	'darkness'
ɲall-udɛ	'to pass the day'	**ɲal-aa^{n}dɛ**	'day'
sudd-udɛ	'to cover'	**suud-u**	'house, shelter'
wujj-udɛ	'to steal'	**^{n}guy-ka**	'theft'
ɗojj-udɛ	'to cough'	**ɗoy-ru**	'cough'

The denominal derivation does not especially show any kind of meaning that is common for a reduplicated verb form, such as a repetitive or an intensive meaning. In the verbs **wujjudɛ** 'to steal' and **ɗojjudɛ** 'to cough' some kind of causative, or agentive meaning seems present in the extension. The verb **suddudɛ** 'to cover' can be paraphrased as "to provide a shelter". The verb stem **sudd-** 'to cover' occurs also in the noun **suddamaarɛ** 'a blanket which covers a person when sleeping'.

The treatment of these verbs with a single and geminate stem final consonant as having only a coincidental similarity in shape and meaning is theoretically possible. However, there are too many forms where the meaning of the two verb stems show a resemblance in form and meaning to reject the existence of this extension formed by gemination of the stem final consonant. It is not simply a reduced form of verb stem reduplication. The general meaning of this extension seems hard to grasp, but it seems to add an intensive, a more durative and sometimes a causative meaning to the verb roots.

5.3.5 EXHAUSTIVE *l

Gaden (1913:66) describes the extension -l- as the addition of a nuance of intensity added to the verb stem. Gaden gives the following examples:

awlude	'to turn upside down, move, touch, affect'	**awde**	'to seek what is hidden'
momlude	'to rub energetically with open hand'	**moomde**	'to rub with open hand'
heblaade	'to be ready to leave immediately' (at an undetermined moment)'	**heɓaade**	'to be prepared to leave

Klingenheben (1963:214) calls the same extension the intensive ("intensiv"). He gives the following additional examples.

yaal-	'visit, attend, pass'	**yah-**	'go, walk'
ɲaml-	'borrow'	**ɲam-aa^{n}de / ɲam-aale**	'debt'

The hypothesis is that the following examples in Maasina also contain this extension.

see-l-udɛ	'to cut leather into strings, tear up'	**seek-udɛ**	'to cut leather'
ceel-ol / ceeli	'leather string'		
way-l-udɛ	'to change, transform'	**way-dɛ**	'to resemble'
yarr-aadɛ < ***yar-l-**	'to tolerate, accept'	**yardɛ**	'to drink'
saw-l-udɛ	'to be destroyed by insects'		
ɓoy-l-udɛ, ɓoydudɛ	'to twist (arm, rope)'		
dew-l-udɛ	'to marry'	**rew-dɛ**	'to obey, follow'
dew-l-ɛɛdɛ	'to get married'		
dew-gal / dew-l-ɛ	'marriage'		
ɲam-l-aadɛ, ɲalmaadɛ	'to lend, borrow, to be in debt'	**ɲaam-udɛ**	'to eat'
ɲam-aa^{n}dɛ / ɲamaalɛ	'debt' (lit: what has been eaten)		

The following figure gives a tentative formula for the exhaustive extension.

V --> V + l
|
"V totally, exhaustively, until finished"

The appropriateness of the formula for the exhaustive extension is obvious from an example such as **seeludɛ** 'to tear up, to cut into (leather) straps' which is the cutting of leather until it is finished, derived from the verb **seekudɛ** 'to tear, to cut (leather)'. The root final consonant [**k**] has been dropped because the sequence ***kl** is not permitted. The more sonorant [**l**] cannot follow the less sonorant [**k**] in the underlying form ***seek-l-udɛ**.

The verb **yarraadɛ** 'to tolerate' has a cognate form **yarlaade** in Fuuta Jallon (Zoubko 1980:532). The sequence ***rl** becomes ***rr** in Maasina. The paraphrase "to drink until finished" describes **yarraadɛ** 'tolerate' metaphorically as the taking in of both the good and bad aspects of s.o. or sth., which is basically the concept of tolerance, not only the

acceptance of the good side which is easy, but ultimately also the acceptance of the bad sides.

In a verb such as **dewludɛ** 'to marry' the exhaustive extension is less clear, it could be derived from the verb **rɛwdɛ** 'to obey'. Possibly the extended verb alludes to the total obedience, following and respecting of cultural customs that have to be performed by the man in the procedures leading to marriage. The same morpheme **-l-** appears in the plural form of the noun **dɛwgal/dɛwlɛ** 'marriage'. This word refers to the matrimonial union, the marital bond, when all the obligations have been completed, and the marriage is finally a fact.

The consumption of money is a metaphor that is more often used to denote the concept of borrowing in West Africa. The exact role of the exhaustive meaning in the derivation from **ɲaam^{n}dɛ** 'to eat' to **ɲamlaadɛ**, **ɲalmaadɛ** 'to borrow' is less clear. But the hypothesis remains that stems ending in two consonants, of which one is an **-l-** are likely to be formed with the exhaustive extension. Gaden (1913:12) already stated that most roots in Fulfulde are of the form CVC (or CVVC). The majority of the roots with a CVCC form have to be considered as CVC roots that combine with an ancient derivational element. This may be what has happened, but this is sometimes difficult to prove because the derivational history may be lost.

5.3.6 BRUSQUE *ɓ

Another unproductive and rare ancient derivational element is the extension with the form **-ɓ-**. Gaden (1913:66) gives the following examples, and he states that this element adds an idea of brusque violence.

hul-ɓ-in-^{n}de	'to frighten'	**hul-de**	'to fear'
mar-ɓ-aade	'to throw oneself with force on'	**mar-de**	'to keep and raise'

Klingenheben (1963:214) says that the extension indicates the sudden occurrence of an event. His examples are given below.

hul-ɓ-in-	'frighten s.o. suddenly'	**hul-**	'fear'
hol-ɓ-	'rustle (of a new cloth)'	**kol-t-al**	'garment, dress'

A tentative formula for the brusque extension is given below. The action of the verb is performed brusquely, i.e. in a sudden manner, and often with force.

V --> V + BRU (**ɓ**)
|
"V brusquely (suddenly and with force)"

The following examples of verb stems with the brusque extension are found in Maasina.

hol-ɓ-udɛ	'to make a sound, cry for help'	**hɔɔl-**	'make noise' (Z:A)
hul-ɓ-in^{n}dɛ	'to frighten'	**hul-dɛ**	'to fear'
yaa-ɓ-udɛ	'to tread, to step'	**yaa-dɛ**	'to go, to walk'

The translation equivalent of the verb **holɓudɛ** given in Maasina by the consultants was 'to make a sound'. The translation 'to cry for help' found in Zoubko (1980:216) confirms even more the meaning of this extension. The verb **holɓudɛ** 'make a sound' is derived from the verb stem **hɔɔl-** 'to make noise' which does not occur in Maasina, but it does occur in Aadamaawa (Zoubko 1980:243).

The verb **hulɓinⁿdɛ** 'to frighten' also combines with the causative extension. Further research should verify whether the idea of brusqueness is implied by this verb. Of course frightening is much more successful if done suddenly and forcefully, so the brusque meaning of this extension is probable.

The verb **yaaɓudɛ** 'to tread, step' seems to put more emphasis on the forcefulness of the action, forcefully putting down one's foot. However, the unproductiveness of the brusque extension makes it difficult to find many examples on which the hypothesis of its meaning can be tested.

5.3.7 PARTITIVE *is

Klingenheben (1963:214) describes the extension **-s-** as denominal. He has only one example, given below, and does not specify the meaning of this extension further.

new-s-	'be fat'	**new-ee-**	'fat' (adjective grade B)

Mohamadou (1985:84) describes the meaning of the extension as the addition of the idea that the action of the verb is realized only partially. The adverbs he uses to describe this meaning are 'a little, a bit, almost' ["peu, quelque peu, quasi, presque"]. He found the following examples in Aadamaawa. These are followed by a tentative formula for the partitive extension.

ɲaw-s-a	'be continuously a little bit ill'	**ɲaw-a**	'be ill'
hee-s-a	'approach'	**heɟ-a**	'reach a fixed limit'
mar-s-a	'have sth. as (last) resort; boast, brag'	**mar-a**	'possess, have'
hor-s-a	'hollow, deepen (wells, recipients)'	**hor-oo**	'remain; dry up (of wells)'

V --> V + PART (**s**)
|
"V a little"

In the data of Maasina the following examples are formed with the partitive extension.

tam-s-udɛ	'to take in arms and hold tight'	**tam-udɛ**	'to hold in a closed hand'
ɓur-s-udɛ	'to remove seeds from cotton'	**ɓur-dɛ**	'to surpass, be worth more'
fell-is-iddɛ	'to decide'	**fɛll-**	'assure, convince' (Z)
her-s-udɛ	'to be ashamed (about sth.)'	**hɛr-a**	'be solid' (Z)
hɔl-s-ɛrɛ	'a hoof'	**hɔɔl-**	'make noise' (Z:A)
ŋom-s-udɛ	'to touch s.o. softly to draw attention'	**ŋom-in-oo**	'sit on one's heels with arms crossed on knees' (Z)

Some of the above examples are more convincing than others. The verb **fellisiddɛ** 'to decide' combines with **-iddɛ**, the infinitive form that is typical for verbs with an extension of the form **-iC-**. It can be paraphrased as "convincing oneself a little", which is necessary for a decision. The word **hɔl-s-ɛrɛ** 'a hoof' is possibly derived from the verb stem ***hɔls-** 'make a little bit of noise'. The semantics of the extension seems possible in a verb like **ŋom-s-udɛ** 'to touch someone softly to draw attention'. The stem ***ŋɔm** that should have a meaning like 'touch' is found in combination with the causative extension **-in-** and the middle voice in the verb stem **ŋom-in-oo** 'sit on one's heels with arms crossed on knees' (Zoubko 1980:382) that can be paraphrased as "make one touch oneself".

5.3.8 RESULTATIVE *i^{n}d

Gaden (1913:65), describing the dialect of Fuuta Tooro, suggests that the extension with the form **-^{n}d-** is an allomorph of the comitative extension **-d-**. Gaden says it expresses the same meaning, i.e. an idea of association between the subjects that can occur in relation of the meaning of the verb. The examples provided by Gaden are given below.

fon^{n}dude	'to equal, compare to'	**fot-**	'be equal to' (< ***fot^{n}dude**)
saw^{n}daade	'to be parallel with'	**saaw-**	'pack'
hir^{n}dude	'to travel in the evening'	**hiir-**	'be evening, pass the evening'

Gaden admits that the meaning of the extension is not always very obvious. The present meaning of a lexicalized verb stem with an unproductive extension can be far from the original meaning of the verb root from which it is derived, because of semantic shift. This can obscure the discovery of the correct meaning of this extension.

Klingenheben (1963:204) also expresses some reservation about the meaning of the extension **-^{n}d-** that it is a bit obscure and also that the number of examples is rather small. He attributes a resultative meaning to the extension. His examples are given below.

tam^{n}d-	'close the hand, form with hand'	**tam-**	'hold in hand'
laar^{n}d-	'look into the eyes, test, investigate'	**laar-**	'look'
tefi^{n}d-	'study, investigate'	**tef-**	'ask for sth.'
heɓi^{n}d-	'get, receive; make/be possible; torment'	**heɓ-**	'get; bump into sth.'
heri^{n}d-	'attract someone's attention, call with hmm'	**her-**	'cackle, gabble'
ɲaw^{n}d-	'treat, cure, make healthy again'	**ɲaw-**	'be ill'
huuɓi^{n}d-	'overrun, place around'	**huuɓ-**	'enclose, cover, be abundant'
ʔom^{n}d-	'cover, close'	**ʔomt-**	'open, uncover'
ʔom^{n}d- dow	'destroy'		
ʔom^{n}duki	'hidden meaning, ambiguity'		
yeri^{n}d-	'equip, prepare'		
melʔi^{n}d-, melɟi^{n}d-	'put out one's tongue'		
hoo^{n}d-	'be a gentleman'	**koohoho / hoohoɓɓɛ**	'lord, gentleman, leader'

Mohamadou (1985:78-83) puts forward the hypothesis that the extension -^{n}**d**- is a combination of the causative extension -**n**- and the comitative extension -**d**-. He gives the following examples:

laarndugo	'to predict'	**laar-**	'see'
foondugo	'to compare, measure'	**fot-**	'be equal'
ɲawndugo	'to treat, cure, heal'	**ɲaw-**	'be ill'
faand-	'approach'	**faʔ-**	'go in direction'
yimnd-	'sing praise'	**yim-**	'sing'
wamnd-	'make a baby dance'	**wam-**	'dance'

Mohamadou (1985:78) suggests that the causative/comitative extension ["dérivatif factitif associatif"] adds the idea of causing the association between either the subject or the object and the verb, or the idea of causing the finishing of the action of the verb. The latter idea seems very different from the first. Although some examples probably combine the causative and the associative, the latter meaning is too different and will therefore be considered as a separate extension. The verb stem **wamnd-** is rejected here as an example of the -^{n}**d**- extension, firstly because there is no phonetic difference possible between a sequence ***nd** and **n^{n}d**. The consonant [**d**] will automatically become prenasalized when it follows a nasal consonant. Secondly, the verb stem **wamnd-** 'dance with; make (a baby) dance' could very well be from the verb stem **wam-** 'dance' with the comitative extension -**d**-, since a baby only dances in the company of an older person who moves the baby as if it were dancing.

Another reason why the extension -^{n}**d**- cannot be the combination of the causative and the comitative extension is the fact that when two extensions combine, the second extension has a full -VC- form synchronically. A tentative formula for the resultative extension is given below.

V --> V + RES (^{n}**d**)
|
"achieve V, achieve goal of V"

The verb **dan^{n}dudɛ** 'to save' can be paraphrased as "to achieve escaping misfortune". The verb **han^{n}dudɛ** can be paraphrased as "to achieve the goal of denying sth." These and some more examples found in Maasina are given below.

loo-^{n}d-udɛ	'to wash (clothes)'	**loot-udɛ**	'to wash'
ɲaw-^{n}d-udɛ	'to make someone invulnerable'	**ɲaw-dɛ**	'to be ill'
riw-^{n}d-udɛ	'to load an animal'	**rif-t-**	'to unpack, stop a caravan' (Z)
seen-^{n}d-udɛ	'to separate, make a distinction'	**seed-udɛ**	'to leave, divorce'
fon-^{n}d-udɛ	'to make equal, divide equally'	**fot-udɛ**	'to be equal'
han-^{n}d-udɛ	'to prevent, obstruct'	**had-udɛ**	'to deny, refuse, forbid'
han-^{n}d-aadɛ	'to restraint oneself, hold back'		

roo-ⁿd-udɛ	'to put a load on s.o.'s head'	**roo-t-**	'unload, take s.o.'s load' (Z)
rɔɔ-ⁿd-aadɛ	'to carry on the head'		
dan-ⁿd-udɛ	'to save s.o.'	**daɗ-udɛ**	'to be first in competition, to escape misfortune'

Some verbs ending in two consonants, with a final consonant [ⁿ**d**] could also be stems combining with the resultative extension, because any root of the form CVCC is suspicious. The following examples are verbs with suspicious CVCC root forms.

ren-ⁿd-udɛ	'to fight'
sun-ⁿd-udɛ	'to get used to bitter taste by eating bitter leaves'
gan-ⁿd-aadɛ	'to be directed towards, go in the direction of'

5.3.9 RECIPROCAL ***oⁿdir**

The reciprocal extension has only the form **-oⁿdir-** in Maasina. In other Fulfulde dialects the forms of this extension are different. The forms are **-indir-** and **-ootir-** in Gombe (Arnott 1970a:357-360), where the latter form occurs especially in combination with middle voice verbs. In Noŋaare (De Wolf 1987:61) the form of the reciprocal extension is **-odir-**, in combination with reduplicated verbs the forms **-itir-** and **-otir-** occur. In Aadamaawa the form of the reciprocal extension is **-indir-** (Mohamadou 1985:83), or more precisely **-iⁿdir-** (Klingenheben 1963:211). Mohamadou (1985:99) also mentions the form **-ootir-** that is used in middle voice verbs. The following examples of verbs formed with the reciprocal extension are found in Maasina.

jokk-oⁿdir-dɛ	'to follow one another'	**jɔkk-**	'follow'
woɗɗ-oⁿdir-dɛ	'to be far away from each other'	**wɔɗɗ-**	'be far away'
yiɗ-oⁿdir-dɛ	'to love each other'	**yiɗ-**	'love'

The formula for the formation of verb stems with the reciprocal extension is given below.

V --> V + REC (**oⁿdir**)
|
"V each other"

The reciprocal extension **-oⁿdir-** does not combine with other extensions. It is possible that the reciprocal extension itself contains three extensions in a fixed combination. Possibly the reciprocal extension is a combination of the causative **-n-**, the comitative **-d-**, and the circumstantial **-ir-**. The vowel [**o**] could be a trace of the middle voice indicating a reflexive meaning. (The middle voice marker is not considered to be an extension.) The meaning of these markers combined could give a reciprocal meaning.

middle voice [**ɔ**]:	action of verb affects the subject, e.g. S=patient + agent
causative [**n**]:	cause
comitative [**d**]:	together
circumstantial [**ir**]:	how, with

The middle voice expresses the fact that the (plural) subject is affected by the action of the verb. The causative extension expresses the fact that the action of the verb is made to affect another agent (the co-subject). The comitative extension expresses the fact that the (plural) subjects perform the action of the verb together. The circumstantial extension expresses how the action is done (in a manner where the plural subjects together affect each other).

5.3.10 SIMULATIVE *iŋkin

The simulative extension **-iŋkin-** is also mutually exclusive with most verbal extensions. It can be preceded by the reversive extension **-t-**. Possibly the form **-iŋkin-** is derived from two extensions. The causative extension **-in-** might be one of them. The extension with the form **-kin-** only occurs in the simulative extension. In some dialects it is only this form, **-kin-**, that marks the simulative extension.

The simulative extension expresses the idea of someone pretending to perform the action or to be in the state expressed in the verb root. The formula for the verb stems combining with the simulative extension is given below.

V --> V + SIM (**iŋkin**)
|
"pretend to V, cause the impression of V-ing"

There are not many examples of verb stems that combine with the simulative extension, but the meaning of the derived simulative verb stem is very transparent. Simulative verb stems always combine with the middle voice, this is because the subject affects itself, it both performs and undergoes the pretending action. The following examples of simulative verb stems occur in Maasina.

ɲaamiŋkinaadɛ	'to pretend to be eating'	**ɲaamudɛ**	'to eat'
ɲawiŋkinaadɛ	'to pretend to be ill'	**ɲawdɛ**	'to be ill'
waawiŋkinaadɛ	'to pretend to be capable'	**waawdɛ**	'to be able'
ɗaaniŋkinaadɛ,			
ɗaantiŋkinaadɛ	'to pretend to be asleep'	**ɗaanaadɛ**	'to sleep'
ɓurtiŋkinaadɛ	'to be haughty, arrogant, to pretend to be superior'	**ɓurdɛ**	'to surpass'

The simulative extension in other dialects has different forms. The form in Aadamaawa is **-kikin-** according to Klingenheben (1963:210). Mohamadou (1985:100) describes the forms **-kin-** or **-ikin-** for southern Aadamaawa. Sylla (1982:117) also gives the form **-kin-** for the simulative extension in Fuuta Tooro. In Gombe the form is **-kin-** or **-ikin-** (Arnott 1970a:357). Like in Maasina, the Gombe simulative verb stems only combine with the middle voice inflections.

5.3.11 REVERSIVE *it

The extension with the form **-it-** or **-t-** is not always treated as one verbal extension. Some authors enumerate a number of homonymous extensions with this form. Arnott (1970a:334) distinguishes five different extensions that are morphologically identical. De Wolf

(1985b:209) describes the same five homonymous extensions for Noŋaare, a Fulfulde dialect spoken in Western Niger. The following homonymous extensions are distinguished by Arnott and De Wolf.

I	-t-	Reversive
I	-t-	Repetitive
III	-t-	Reflexive
IV	-t-	Retaliative
V	-t-	Intensive

Gnalibouly (1990) distinguishes two extensions with this form that are homonyms in Maasina, one reflexive extension **-t-** and one polysemous extension **-t-** with the repetitive, reversive, and intensive meaning.

Mohamadou (1985, 1988) lists six meanings for the reversive extensions in Aadamaawa. Some of these meanings are also found in the work of other authors, like repetition, inversion, and intensification. Others are distinct, like the meanings "in detail", "comparative, increasing", and "change of state". One of his examples **soppit-** 'cut into pieces' seems to involve a combination of the repetitive and intensive meaning rather than a separate meaning "in detail" for the reversive extension **-it-**. Equally the verb stems **hoy-** 'be easy' and **hoyt-** 'be more easy' seem to be examples of the intensive meaning and not a separate "comparative, increasing" meaning for the reversive. The meaning indicating "a change of state/become" in **ɓalwi** 'be black' and **ɓalit-** 'be blackened' is not expressed by the extension **-it-**. The verb **ɓalw-** actually also means 'to become black'. It is only in combination with the stative conjugation that the verb means 'to be black'. The meaning of **ɓalit-** is more likely to imply the fact that something is made black again, as it was in a previous state. Of course the last hypothesis has to be checked against examples of sentences where the verb **ɓalit-** is used in Aadamaawa.

Klingenheben (1963:187) only lists one verbal extension with the form **-t-**, to which he ascribes four different meanings, i.e. an intensive, repetitive, reversive, and reflexive meaning.

In this study the extension **-it-** will be treated as one polysemous reversive extension. The derived verb stem can have different interpretations, such as the reversive, repetitive, and intensive meanings as represented in the formula below.

V --> V + REV (***it**)
|
"V back"
"undo V"
"V again, V for the second time"
"V repeatedly"
"V intensively"

The paraphrases given are all possible interpretations for the phrase "V back", representing one meaning that gets contextualized. The different interpretations of the meaning expressed by the reversive extension are linked. The best translation equivalent of the basic

meaning of the extension **-it-** seems to be the adverb "back". From this basic paraphrase of the reversive extension "V back" the polysemy of the extension can be easily demonstrated. The following list gives a schematic linking of the different interpretations of the reversive meaning.

reversive, separative:	V back, undo V
repetitive, iterative:	V back, V again, V a second time, V repeatedly
intensive:	V back, V repeatedly, V intensively

The paraphrase "V back" can be interpreted in several ways. It can be interpreted as the undoing of an action, whereby the process expressed in the verb root is turned back. This is what is called the "reversive" in the literature. Some examples of the reversive extension given by Arnott (1970a:340-343) are the following:

war-t-a	'come back'	**war-a**	'come'
meet-it-o	'take off a turban'	**meet-o**	'put on'
taar-t-a	'unwind'	**taar-a**	'wind'
ʔom-t-a	'open, uncover'	**ʔommb-a**	'close, cover'
seŋ-t-a	'un-haft (hoe, axe)'	**seŋg-a**	'haft'
fiɓ-t-a	'untie'	**fiɓ-a**	'tie'
sad-(i)t-a	'be easier'	**sad-a**	'be difficult'

Undoing an action is a possible interpretation of the extension **-it-**. The verb stem with this extension always expresses the fact that two things are separated away from each other. This is the reason why Schadeberg (1982) proposes the term "separative" for this extension in his description of (proto-)Bantu. The action expressed by the verb stem **meetito**, the unwinding of a turban can be paraphrased as the "winding back" of a turban (reversive), it can also be paraphrased as the separation of the turban from the head (separative). The following examples of separative-reversive verb stems occur in Maasina.

soottudɛ	'to sell'	**soodudɛ**	'to buy'
ʔomtudɛ	'to take away the lid'	**ʔomᵐbudɛ**	'to cover with lid'
ɓiltudɛ	'to unhook, detach'	**ɓildɛ**	'to hang on hook'
fimtudɛ	'to untie'	**fiɓudɛ**	'to tie'
sentudɛ	'to uncouple, de-link'	**seŋudɛ**	'to couple, link'
duwtaadɛ	'to loosen one's belt'	**duhaadɛ**	'to fasten belt'
ɓɔɔrtaadɛ	'to undress o.s.'	**ɓɔɔrnaadɛ**	'to dress o.s.'
ʔudditiddɛ	'to open'	**ʔuddudɛ**	'to close'
sudditiddɛ	'to remove cover, uncover'	**suddudɛ**	'to cover'

When the extension **-it-** is interpreted as "to undo V" the derived verb stem expresses the converse or opposite action of the verb root without the extension, and two entities are taken away from each other. For example the verb **ʔom-t-udɛ** 'to open', a lid is removed from a bowl, this is the reverse from **ʔomᵐbudɛ** 'to cover, close' where the lid is put on the bowl; **ɓil-t-udɛ** 'to unhook' is the reverse of **ɓildɛ** 'to hang' where something is brought to

the hook; **soot-t-udɛ** 'to sell' is the reverse of the action expressed in **soodudɛ** 'to buy'; **duw-t-aadɛ** 'to loosen one's belt' is the opposite action from fastening one's belt, **ɓɔɔr-t-aadɛ** 'to undress oneself' describes the removal of clothes from the body.

The paraphrase "V back" can also be interpreted as "V again", this happens in what is traditionally distinguished as the iterative or repetitive extension. The following examples of the repetitive (iterative) are provided by Arnott (1970a:341).

mah-it-o	'rebuild'	**mah-a**	'build'
wii-t-a	'say again'	**wiʔ-a**	'say'
rem-t-o	'do a second hoeing'	**rem-a**	'hoe'

The verb **mahit-o** 'to build something again' implies that something has been destroyed or damaged, and the building is put back as it was before. The relation between "V back" and "V again" is also clear from the verb stem **wiit-** 'to say again' where something is repeated, played back, like it had been said before.

From the reversive meaning "V back" to the repetitive meaning "V a second time" also there is only a small step, as in the verb **remtudɛ** 'to hoe a second time'. The following verbs are examples showing a repetitive meaning expressed by the reversive extension in Maasina

remtudɛ	'to hoe a second time'	**remudɛ**	'to hoe'
yimtudɛ	'to sing for a second time'	**yimudɛ**	'to sing'
samtudɛ	'to be recovering (from illness)'	**samudɛ**	'to improve'
yiitudɛ	'to see again, find back'	**yiidɛ**	'to see'
ɗaantaadɛ	'to sleep again'	**ɗaanaadɛ**	'to sleep'
saltaadɛ	'to refuse again, what had been accepted before'	**salaadɛ**	'to refuse'

The repetitive meaning of **samtudɛ** can be found in the paraphrase "to improve again (after illness)". Sometimes the repetition literally indicates a second time as in **remtudɛ** 'to hoe, to cultivate a second time'. It can also be interpreted as 'to hoe again' but it has got this specific meaning in the agricultural setting of the Fulbe.

The retaliative meaning, which some authors give to the extension **-it-** follows from the meaning of the verb to which it is attached, rather than from the extension itself. The following words are Arnott's examples of the retaliative extension.

fii-t-o	'hit again, hit back'	**fiy-a**	'hit'
lat-it-a	'kick back'	**lat-a**	'kick'
jal-t-a	'laugh at in turn'	**jal-a**	'laugh at'

The above examples can simply be paraphrased as **fiita** "hit back", **latita** "kick back" and **jalta** "laugh back".

The semantic interpretation of "V intensively" from "V back" has to be made via the repetitive meaning "V again" of the extension **-it-**. The repetition of an action can imply a

stronger, more intense manifestation of the action or state expressed by the verb root. The following examples are reversive verb stems with an intensive meaning in Maasina.

ⁿdaartudɛ	'to look for, search'	**ⁿdaardɛ**	'to look'
heltudɛ	'to smash, shatter '	**hɛldɛ**	'to break'
tewtudɛ	'to search for'	**tefudɛ**	'to look for'
ɓurtudɛ	'to be superior, be better'	**ɓurdɛ**	'to surpass'
foowtudɛ, fowtudɛ	'to rest'	**fɔɔfaadɛ**	'to breathe'

The comparison of the verb **yoppudɛ** 'to drop' in Maasina and **yooft-** 'drop' in Gombe shows an interesting difference in the use of extensions across dialects. Both verbs are derived from the verb stem **yoof-** 'release, leave, liberate, abandon (Zoubko 1980:543, Arnott 1970a:344). In Maasina the verb **yoppudɛ** 'to drop' is formed with the intensive extension ***ʔ** causing a geminate final consonant. In Gombe the verb stem **yooft-** is formed with the reversive extension **-t-** that also expresses the intensive meaning. The intensive meaning can be expressed both with the more petrified intensive extension, and with the more productive reversive extension.

Arnott (1970a:342) and Klingenheben (1963:187) also list the reflexive meaning as one of the meanings of the extension(s) with the form **-t-/-it-**. This study rejects the reflexive as a possible meaning of the extension **-it-**. Arnott's examples of extended verb stems with a reflexive meaning do not have only the extension **-t-/-it-** added, they also involve a change in voice. The verb root from which the reflexive examples are derived are often in the active voice. The extended reflexive verb stems are in the middle voice. It is the middle voice that adds the reflexive meaning to the verb root, not the reversive extension. In the following list of verb stems, which Arnott gives as examples of the reflexive extension, the ending **-a** represents the active voice inflections, Arnott lists verb stems which combine with middle voice inflections with the ending **-o**.

ⁿdaar-t-o	'look at oneself'	**ⁿdaar-a**	'look at'
war-t-o	'kill oneself, commit suicide'	**war-a**	'kill'
jal-it-o	'laugh at oneself'	**jal-a**	'laugh'
wol-it-o	'talk to oneself, talk secretly'	**wol-w-a**	'speak, talk'
ʔug-it-o	'throw at in turn'	**ʔug-o**	'throw at'
yim-t-o	'sing to oneself'	**yim-a**	'sing'
ɟam-it-o	'ask oneself'	**ɟam-a**	'ask'
taɟ-it-o	'cut oneself'	**taɟ-a**	'cut'

A verb stem like **jalit-o** 'laugh at oneself' can also be compared with the reversive (according to Arnott "retaliative") active verb stem **jalt-** 'laugh back at'. The addition of the middle voice will change the meaning in "laugh back at oneself". The verb stem **wolit-o** combines with the reversive extension and the middle voice to form a meaning that can be paraphrased as "talk back at oneself". The reflexive meaning in all the so-called reflexive verb stems can clearly be attributed to the middle voice. The middle voice inflections are used when the subject is affected by the event expressed in the verb stem, and the subject can be both the agent and the patient of the action expressed in the verb stem.

5.3.12 CAUSATIVE *in

The causative extension expresses the idea that the subject causes the action or process that is expressed in the verb root. The semantic effect of the causative extension is represented in the following formula.

```
V -->  V + CAUS (in)
          |
       "cause V"
```

The causative extension can have different forms in Maasina. The underlying form of the causative extension is ***in**. This form can be shortened to **-n-** after verb roots that end in a single consonant. When the sequence of the root final consonant followed by [**n**] is ill-formed, then either the extension will keep its form **-in-** or assimilation will occur resulting in a geminate nasal [**nn**]. There are a few causative verb stems where, in addition to the extension **-in-**, the stem final consonant is also geminated. The gemination of the root final consonant is thought to be the intensive extension that combines with the causative in a restricted number of causative verb stems, as in the following examples.

fammin-ⁿdɛ	'to explain, make understand'	**faam-udɛ**	'to understand'
hebbin-ⁿdɛ	'to fill'	**hɛɛw-dɛ**	'to be much'
laɓɓin-ⁿdɛ	'to make clean, purify'	**laaɓ-udɛ**	'to be clean'
ɲammin-ⁿdɛ	'to feed, make s.o. eat'	**ɲaam-udɛ**	'to eat'
joʔʔin-ⁿdɛ	'to put down, put on sth.'	**jɔɔɗ-aadɛ**	'to sit'
ɗannin-ⁿdɛ	'to put s.o. to sleep'	**ɗaan-aadɛ**	'to sleep'

Klingenheben (1963:200) assumed that the root final consonant gemination is an old causative form, the same as found in the intensive extension described in section 5.3.4. The root final consonant gemination cannot be explained phonologically, since the same consonant can combine with the causative extension without gemination. Most productive causative verb stems are formed without verb root final consonant gemination.

yaaw-n-udɛ	'to hurry'	**yaaw-dɛ**	'to be fast'
jam-n-udɛ	'to make accept, agree'	**jaɓ-udɛ**	'to accept, receive'
tiin-n-udɛ	'to make difficult'	**tiiɗ-udɛ**	'to be difficult'
doom-in-ⁿdɛ	'to cause to wait'	**doom-udɛ**	'to wait'
bonn-u-dɛ	'to destroy'	**bon-udɛ**	'to be bad'

The forms **-in-/-n-** are described in the literature as allomorphs. Their distribution is complex. There are environments where the choice is obvious, for example the form **-in-** occurs after stems ending in two consonants, the form **-n-** occurs after stems ending in a consonant that is [+continuant, +voiced] like {**w**, **y**, **r**, **l**}. The following examples show causative verb stems where the allomorph **-n-** occurs after [+continuant, +voice] consonants.

ɓur-n-udɛ	'to improve, ameliorate'	**ɓur-dɛ**	'to surpass'
diw-n-udɛ	'to cause to fly; shake (illness)'	**diw-dɛ**	'to fly'
juul-n-udɛ	'to lead in prayer'	**juul-dɛ**	'to pray'
naaw-n-udɛ	'to hurt, make difficult'	**naaw-dɛ**	'to ache'
sɛy-n-udɛ	'to make happy'	**sɛy-aadɛ**	'to be happy'
wuur-n-udɛ	'to make live'	**wuur-dɛ**	'to live'
yar-n-udɛ	'to make drink, water'	**yar-dɛ**	'to drink'

A [-voice, +continuant] consonant cannot occur in syllable final positions, i.e. it cannot precede another consonant. There are two strategies to prevent such an ill-formed sequence. Consider first the following examples of verb roots ending in [-voice, +continuant]:

his-in-ⁿdɛ	'to save'	**his-udɛ**	'to escape danger'
ⁿduus-in-ⁿdɛ	'to live many years'	***ⁿduus-**	
leew-n-udɛ	'to make wet'	**leef-udɛ**	'to be wet'
ɓɛy-n-ɛɛdɛ	'to be born'	**ɓɛy-ɗɔ**	'mother with children'
ɓey-n-udɛ	'to give birth (humans)'	**ɓes-ɗo**	'person with children' (Z)

The first two examples above combine with the -VC- form of the extension **-in-**. In the last three examples the [-voice, +continuant] consonants {**s**, **f**} change to [+voice +continuant], thus becoming glides {**w**, **y**}. The combination with the form **-in-** seems more productive. The verb stem ***ɓɛs-** cannot be found as such in Maasina, it occurs always as **ɓɛy-**. Only dialectal comparison shows that the underlying root final consonant is (or was) [**s**]. A similar pattern can be found when the root final consonant is [-continuant]. A [-continuant] consonant cannot be found in syllable final position, i.e. it cannot occur before another consonant. Such an ill-formed sequence can be prevented by the occurrence of the vowel initial form **-in-** or by assimilation of the root final consonant to the form **-n-**. The final [-continuant] consonant in the following verb roots assimilates to the consonant **-n-** of the causative extension.

donn-udɛ	'to drive'	**dog-udɛ**	'to run'
funn-udɛ	'to make sprout'	**fuɗ-udɛ**	'to rise, sprout'
honn-udɛ	'to found, establish'	**hoɗ-udɛ**	'to settle'
juunn-udɛ	'to lengthen, extend'	**juut-udɛ**	'to be long'
seenn-udɛ	'to make or call as witness'	**seed-udɛ**	'to witness'
wann-udɛ	'to cause s.o. do sth.'	**waɗ-udɛ**	'to do'
luum-n-udɛ	'to cause to smell bad'	**luuɓ-udɛ**	'to smell bad'
ɓaan-udɛ	'to glue, put glue on'	**ɓaat-anɛ**	'a glued cardboard'
suunn-udɛ	'to tame a horse'	**cuud-al**	'a trot (of a horse)'

There are only a few verb roots ending in a single consonant that combine with the -VC- form of the causative extension. The following examples show verb roots ending in a single obstruent which combine with the **-in-** form.

wub-in^{n}dɛ	'to steam'	**wub-**	'throw, lance'
laɓ-in^{n}dɛ,			
lam-n-udɛ	'to cause to shave'	**laɓudɛ**	'to shave'
wood'-in^{n}dɛ,			
woonn-udɛ	'to make good, beautiful'	**wood'udɛ**	'to be good'
jiim-in-aadɛ	'to be pensive, dreamy'	**miijaadɛ**	'to think'

The causative verbs derived from the stem **wɔɔd'-** 'be good, beautiful' and **laɓ-** 'shave' occur with both the **-in-** and the **-n-** form of the causative extension. The verb **jiiminaadɛ** 'be pensive, dreamy' occurs as **jimmin-oo** with a geminate consonant [**mm**] in other dialects (Zoubko 1980:269). The verb is also exceptional because a verb **miijaadɛ** 'think' with a similar meaning seems to point to the fact that the consonants have undergone a strange change of position.

The general impression is that the causative extension has the form **-n-** after roots ending in a single consonant, and it has the form **-in-** after verbal roots ending in two consonants. This distribution is disturbed only by a few exceptions, where the consonant could not precede the nasal [**n**]. For reasons that are not yet clear the root final consonant did not assimilate to the form **-n-**, but it combined with the form **-in-** of the causative extension. The following examples show that the causative extension has the form **-in-** without exception after verbal roots ending in two consonants.

ʔan^{n}d-in-^{n}dɛ	'to inform, make known'	**ʔan^{n}d-udɛ**	'to know'
dejj-in-aadɛ	'to keep silent, be silent'	**dejj-udɛ**	'to be silent'
darj-in-^{n}dɛ	'to show respect, repute well'	**darj-udɛ**	'to be respected'
goll-in-^{n}dɛ	'to cause to work'	**goll-udɛ**	'to work'
hors-in-^{n}dɛ	'to love, cherish'	**hors-udɛ**	'to be cherished'
lamm-in-^{n}dɛ	'to make salty/sour'	**lamm-udɛ**	'to be salty, sour'
majj-in-^{n}dɛ	'to loose'	**majj-udɛ**	'to be lost'
mojj-in-^{n}dɛ	'to make, fabricate'	**mojj-udɛ**	'to be good'
lugg-in-^{n}dɛ	'to deepen'	**lugg-ɛrɛ**	'a hole'
wod'd'-in-^{n}dɛ	'to make go further away, to cause progress'	**wod'd'-udɛ**	'to be far away'

In view of the partial overlap with the causative meaning of the intensive extension, and the fixed number of verb stems that combine with both the intensive and the causative extension, it is necessary to conduct further research into the semantics of these two extensions.

5.3.13 COMITATIVE ***id**

The comitative extension expresses the idea that the subject is made up of more than one individual who perform the action or process expressed in the verb root together. The plurality of the action of the verb can also indicate that the action of the verb is performed on all objects of the verb. There is no need to distinguish subject and object roles, because the comitative meaning can apply to both the subjects and the objects of the verb. The

meanings of verb stems with the comitative extension are represented in the following formula.

V --> V + COM (***id**)
|
"V all, V together"

Arnott (1970a:344-345) gives the first meaning the name associative, the second meaning he calls the comprehensive. Both extensions are treated as homonymous forms. De Wolf (1991) also distinguishes the associative and comprehensive extension. He defines the associative as the association of two or more agents or referents with the same verb. The comprehensive extension (De Wolf 1991:52) refers to "all" possible subjects when the verb root expresses a state or process. When the verb root is an action verb, the comprehensive meaning can refer to the subject or to the object (patient or goal), but not both simultaneously. In this study these two meanings are considered to be linked to the polysemous comitative extension ***id**. The allomorphs of the comitative in Maasina are **-id-**, **-d-** and **-ɔ-d-**, as shown in the following examples.

war-d-udɛ	'to come with s.o.'	**war-dɛ**	'to come'
wonⁿd-udɛ	'to be, live together'	**wɔnⁿdɛ**	'to be'
yimⁿd-udɛ	'to sing together'	**yimⁿdɛ**	'to sing'
nel-d-udɛ	'to send sth. with s.o.'	**nɛl-dɛ**	'to send'
yii-d-udɛ	'to have the same parents, be the same'	**yii-dɛ**	'to see'
waal-d-udɛ	'to pass the night with s.o. or without having eaten'	**waal-dɛ**	'to pass the night'
ʔar-d-aadɛ	'to go in front, be first, lead'	**ʔar-an-ⁿdɛ**	'first'
ʔanⁿd-id-iddɛ	'to know all, come to know s.o.'	**ʔanⁿd-udɛ**	'to know'
far-id-aadɛ	'to put oneself in danger'	**farati**	'danger'
sɛy-ɔ-d-aadɛ	'to be happy together'	**sɛy-aadɛ**	'to be happy'

The form **-id-** occurs when the stem ends in two consonants, like **ʔanⁿdididdɛ** 'know all', which is also an example of the association of two or more objects with the verb stem. The form **-ɔ-d-** occurs in middle voice verbs like **sɛyɔdaadɛ** 'be happy together', which is also an example of the association of two or more subjects with the verb stem. The form **-ɔ-d-** has the underlying form ***id** whereby the vowel assimilates to another underlying vowel ***ɔ** marking the middle voice.

The verb **faridaadɛ** seems to be derived from a noun **farati**, this may explain why it does not combine with the form **-ɔ-d-** as other middle voice verbs do, and why it does not combine with the form **-d-** as other roots ending in a single consonant do. Perhaps the derivation is ***farati-d-aadɛ** > ***far(at)idaadɛ** > **faridaadɛ** with haplology occurring because the sequence of three unstressed light syllables is not allowed.

The comitative extension is considered to be polysemous, it can add the expression of "all subjects together" (associative) or the expressions of "all objects together" (comprehensive).

There is a relation of homonymy between the comitative extension and the circumstantial extension. The underlying form of the circumstantial extension is ***ir** but after stems ending in [**l**] or [**r**] the circumstantial extension has the form **-d-** because of a head-strengthening rule (see section 4.5.1). The following examples show the homonymy between the allomorph **-d-** of the comitative extension and the allomorph **-d-** of the circumstantial extension.

ɓir-d-udɛ	'milk with' + 'milk all'	**ɓir-dɛ**	'milk'
yar-d-udɛ	'drink with' + 'drink together with'	**yar-dɛ**	'drink'
haal-d-udɛ	'speak with sth.' + 'speak with s.o.'	**haal-dɛ**	'speak'

The circumstantial derivation adds an additional association with an instrument or with a manner. The similarity and difference in meaning between the comitative and circumstantial extensions with the form **-d-** could be interpreted as follows:

V + comitative: "V with another subject and/or with another object"
V + circumstantial: "V with another circumstance (instrument, manner)"

The comitative extensions **-d-/-id-** might historically be derived from the circumstantial extension **-r-/-ir-**. Synchronically the comitative and the circumstantial extension have to be distinguished, as shown in the following two sentences.

hoɗum narrataa ?	**ɓɛ nan^{n}dii jimol**
what hear-CIRC-R.INCOMPL-you (SPro)	they hear-COM-COMPL song
With what do you hear? [answer: with your ear]	Together they heard the song.

The verb stem **nan^{n}dudɛ** < ***nan+*d+*udɛ** 'hear together' which contains the comitative extension has a form that is different the verb **narrudɛ** < ***nan+*r+*udɛ** 'to hear with sth.' combining with the circumstantial extension. So the circumstantial extension can have a clearly distinctive form from the comitative extension, even though the circumstantial can (through a phonological rule of onset strengthening) sometimes have the same form **-d-** as the comitative extension **-d-**.

5.3.14 CIRCUMSTANTIAL *ir

The circumstantial extension introduces arguments into the frame of a verb stem which expresses the manner in which the action of the verb is performed, or the instrument with which the action of the verb is performed. The meaning of the circumstantial extension is represented in the following formula.

V --> V + ***ir**
|
"V with (instrument/manner)"

Klingenheben describes the extension **-ir-** as polysemous, its basic meaning being "modal". Mohamadou (1985:96) describes a polysemous extension **-ir-** as "circumstantial", its

polysemy is caused by the different arguments that it can link to the meaning expressed in the verb root: an instrument, a manner, a place, a time. The assumption of Arnott (1970a:348-353) and De Wolf (1991) that the modal and locative extension are homonyms is rejected here. Following Klingenheben and Mohamadou the assumption is that there is only one circumstantial extension, the context indicates whether manner, time, or place is the additional argument related to the verb. The allomorphs of the circumstantial extension are **-ir-**, **-r-**, **-d-**, and **-ɔ-r-**. The form **-ir-** occurs after the following verb roots.

fij-ir-dɛ	'to play with; commit adultery'	**fij-udɛ**	'to play'
jaɓ-ir-dɛ	'to accept with, because'	**jaɓ-udɛ**	'to accept'
jaŋⁿg-ir-dɛ	'to learn with'	**jaŋⁿg-udɛ**	'to learn'
wart-ir-dɛ	'to bring back'	**war-dɛ**	'to come back'
ʔinⁿd-ir-ɛɛdɛ	'to be baptized with (a name)'	**ʔinⁿdɛ**	'a name'

The form **-ir-** occurs after verbal roots ending in two consonants and after single consonants that are more sonorant than **-r-**. The form **-r-** occurs after verbal roots ending in a single consonant that is less sonorant than [**r**], or that can assimilate to [**r**] if it is more sonorant. The form **-r-** occurs in the following circumstantial verb stems.

waa-r-udɛ	'to be equal to, to be like'	**waa-dɛ**	'to resemble'
woow-r-udɛ	'to be used to'	**wɔɔw-dɛ**	'to be used'
fii-r-udɛ	'to hit with'	**fii-dɛ**	'to hit'
rem-r-udɛ	'to cultivate with'	**rɛm-udɛ**	'to cultivate'
narr-udɛ	'to hear with'	**nan-udɛ**	'to hear'
naarr-udɛ	'to enter (of water)'	**naat-udɛ**	'to enter'
warr-udɛ	'to do because of'	**waɗ-udɛ**	'to do'
tew-r-udɛ	'to look for by s.o., request s.o.'	**tef-udɛ**	'to look for'

The form **-d-** occurs after verb roots ending in a single consonant [**r**] or [**l**], as is shown in the following circumstantial verb stems.

ɓir-d-udɛ	'to milk with' (also 'milk all')	**ɓir-dɛ**	'to milk'
yar-d-udɛ	'to drink with' (also 'drink together with')	**yar-dɛ**	'to drink'
haal-d-udɛ	'to speak with sth.' (also 'speak with s.o.')	**haal-dɛ**	'to speak'

The following sentence shows the syntactic and semantic similarity of the form **-d-** in **wuldi** 'be hot with' (< **wul-dɛ** 'be hot') and **-r-** in **keewri** 'be many with' (< **hɛɛw-dɛ** 'be many').

kaa no naange wul-d-i e no duluuji keew-r-i,
But how sun be hot-CIRC-R.COMPL and how winds be many-CIRC-R.COMPL
mo yoor-aa yonki fuu
he dry-NEG soul at all
'But however hot the sun was and however many the whirlwinds were,
he wouldn't dry his soul at all.' (Tioulenta 1980a:26)

The adverb of manner **nɔ** 'how' requires the circumstantial extension **-r-** on the verb, which appears as the allomorph **-d-** after the stem **wul-**.

Historically the form **-ɔ-r-** has the underlying form **-ir-** which assimilated its unstressed short vowel to a following underlying vowel [ɔ] of the middle voice. The middle voice marker only occurs fused with other morphemes. The hypothesis is that the form **-ɔ-r-** is a merged form of both the middle voice and the circumstantial extension. This gives a more complicated semantic derivation than simply the addition of an instrumental or modal argument, as can be seen in the following examples of circumstantial verb stems with the **-ɔ-r-** form.

taj-ɔ-r-dɛ	'to be sure of'	**taj-udɛ**	'to cut'
jatt-ɔ-r-dɛ	'to be obliged to accept'	**jatt-udɛ**	'to take back'

The circumstantial extension occurs often in the formation of nouns in Grade C. The circumstantial extension in these nouns indicates the manner in which the place or room is used, i.e. it indicates the purpose of the place or room. This analysis disputes the attribution of a locative meaning to the circumstantial extension. The long lists of nouns given by Arnott (1970:353) and De Wolf (1991:62-63) are meant to demonstrate the locative meaning of the circumstantial extension. The following examples are nouns with the circumstantial extension in nouns in Gombe.

dur-d-udɛ	'grazing pasture' ("place used for grazing")	**dur-dɛ**	'to graze'
juul-ir-dɛ	'mosque' ("place used for praying")	**juul-dɛ**	'to pray'
wam-ir-du	'dancing room' ("room used for dancing")	**wam-udɛ**	'to dance'
wam-ir-dɛ	'dancing place' ("place used for dancing")		

However, the locative meaning is expressed by the class markers, not by the circumstantial extension **-ir-**. The meaning "place, place outside" is associated with the NDE class. The meaning "room, place inside" is associated with the NDU class. This is also evident from the comparison of the words **wamirdu** 'dancing room' and **wamirdɛ** 'dancing place'. The meaning of the circumstantial extension in grade C nouns is further discussed in section 6.1.4.

5.3.15 ALTRI-LOCATIVE *ɔy

The extension **-ɔy-** should give little reason for controversy. But different descriptions of its name and the precise indication of its meaning are found in the literature. Gaden (1913:62) described the meaning of the extension **-oy-** as indicating a change of place. Klingenheben (1963:210) called a stem with the extension **-oy-** an altri-locative stem ("altrilokale Stamm"). He describes the action of such a verb as taking place in another place, different from where subject is located. Arnott (1970a:356) calls the **-oy-** extension the distantive extension. He states that the distantive indicates that the action takes place at a distance, or originates from a distance, paraphrased with the adverb "yonder". Mohamadou (1985:93) also calls **-oy-** the distantive extension, but he describes its meaning differently. For him, it indicates that the action of the verb root is realized with movement.

The meaning described by Klingenheben implies all other meanings. If the action is performed in another place, it implies a distance between the subject and the place of action. If the action is performed in another place, it implies movement to that other place. The term altri-locative will be used, the meaning of this extension is represented in the following formula.

V --> V + ***ɔy**
|
"V elsewhere, go V elsewhere"

The following examples of altri-locative verb stems occur in Maasina.

dur-ɔy-dɛ	'to herd elsewhere'	**dur-dɛ**	'to herd'
sɔm-ɔy-aadɛ	'to do daily shopping'	**sɔm-aadɛ**	'to purchase'
ɓɔɔrn-ɔy-aadɛ	'to go dress oneself (elsewhere)'	**ɓɔɔrn-aadɛ**	'to dress oneself'
luum-ɔy-aadɛ	'to go to the market '	**luum-ɔ**	'a market'

In Maasina the altri-locative extension can have two forms **-ɔy-** or **-ɔw-** which seem to be regionally distributed.

wart-ɔy-ɔɔrɛ, wart-ɔw-ɔɔrɛ	'after next' (centre, Gimballa)
wart-ɔw-ɔɔrɛ	'after next' (Duwansa)

The form **-ɔw-** occurs more in the periphery, the form **-ɔy-** occurs in the centre of Maasina.

5.3.16 DATIVE ***an**

The dative extension is used frequently and productively to refer to the beneficiary. The extension has different names in the literature. Klingenheben (1963:209) calls it applicative, Noye (1974:34, 185) calls it destinative, Arnott (1970a:353) calls it dative, Mohamadou (1985:94) calls it attributive, Gnalibouly (1990:67) calls it the addressative. There are no considerable differences in the descriptions of its meaning. The meaning of the dative extension is represented in the following formula.

V --> V + DAT (**an**)
|
"V for (someone), on behalf of (someone), to (someone)"

The following list of examples of dative verb stems can be supplemented with numerous other verbs that can combine with an indirect object.

fɔd-an^{n}dɛ	'to promise (s.o.)'	**fod-udɛ**	'to promise'
haal-an^{n}dɛ	'to say to (s.o.)'	**haal-dɛ**	'to speak'
ɲall-an^{n}dɛ	'to pass the day for (s.o.)'	**ɲall-udɛ**	'to pass the day'
hɛɛd-an^{n}dɛ	'to protect (s.o.) against, to be in favour of (s.o.)'	**heed-udɛ**	'to be located'

Sometimes the difference in meaning is difficult to establish, especially if the verb root can also combine with an indirect object without the dative extension. The following two sentences contain the verb stem **wiy-** 'say' with and without the dative extension **-an-** followed by an indirect and direct object.

suka pullɔ ʔɔɔ wiy-an-i mɔ ʔinⁿdɛ ⁿgenⁿdi-ʔ
youth Pullo the say-DAT-R.COMPL him name village-FG
'The young Pullo told him the name of the village.' (Tioulenta 1980a:25)

ʔaamadu wii mɔ sɔ weet-ii fati mɔ yah-a nokku
Aamadu say-COMPL him if be morning+COMPL not he go-SUB place
'Aamadu told him not to go anywhere in the morning.' (Tioulenta 1980a:30)

The verb **wiidɛ** 'to say' can combine with an indirect object without the dative extension. The impression is that the verb form **wiyan-** 'say to' with the dative is used in combination with an object (an utterance) that is considered to be useful information for someone. The form **wii-** 'say' without the dative is especially used when the object (utterance) involved is some kind of order (using the subjunctive or imperative). This is a tendency, not a strict rule.

5.3.17 EXTENSIONS IN COMBINATION

In Maasina examples of verb forms combining with up to two extensions have been found. De Wolf (1985) describes a number of verbal forms that combine four extensions in Noŋaare Fulfulde. The following sentence in the Fulfulde of Noŋaare contains a verb stem with four extensions.

ʔo jam-t-id-ir-an-ii mo dewte makko fuu ʔe baayimaare
he ask-REV-COM-CIRC-DAT-COMPL him books his all with insolence
'He begged him with insolence to have all his books.' (De Wolf 1985b:212)

There is a certain order in the sequence of extensions. Some extensions, especially the rare ones, can only occur directly following the verb root. The more productive extensions have a canonical order. The (probably complex) extension **-oⁿdir-** and **-iŋkin-** usually do not combine with other extensions. There are a few examples of the reversive extension **-t-** preceding these extensions. The formula indicating the order of the extensions in the verb stem, as noticed in the combinations found so far, is represented below.

	- ASS									
	- INCH		- REC							
(Verb Root)	- INT	- REV	- RES	- CAUS	- COM	- CIRC	- DAT	- ALT -		
	- EXHA		- SIM							
	- BRU									
	- PART									

The extensions (ASS, INCH, INT, EXHA, BRU, PART) can only occur directly following the verb stem. Only the more productive extensions (REV, RES, CAUS, COM, CIRC, DAT, ALT) can occur further away from the verb root. The order in which the extensions can occur is fixed. The simulative extension and the reciprocal extension are found in combination with the reversive extension, they also occur in the fixed order REV-SIM or REV-REC. Some examples of verb roots with a combination of two extensions are given below.

fɔt-	'equal'	+RES	+CIRC	>	**fɔɔ-ⁿd-ɔr-aadɛ**	'face sth., be opposite'
hɛɗ-	'listen'	+REV	+RES	>	**het-t-iⁿd-aadɛ**	'listen carefully'
ʔɔɔl-	'yellow'	+INCH	+CAUS	>	**ʔool-ɗ-in-ⁿdɛ**	'make yellow'
wɔɗ-	'red'	+ASS	+CAUS	>	**woj-j-in-ⁿdɛ**	'make red'
dar-	'stand'	+REV	+CAUS	>	**dar-t-in-ⁿdɛ**	'rectify, correct'
fin-	'wake up'	+RES	+CAUS	>	**fin-ⁿd-in-ⁿdɛ**	'wake someone up'
hul-	'fear'	+BRU	+CAUS	>	**hul-ɓ-in-ⁿdɛ**	'frighten'

In the Maasina data most extended verb stems have no more than two extensions. Considering the example of a verb stem with four extensions in Noŋaare, there does not seem to be a strict limitation on the number of possible extensions in a verb stem.

5.4 CONJUGATIONAL CATEGORIES

In Fulfulde, the inflection of the verb is traditionally described as a system of verb forms in which verb stems are inflected with a large number of possible conjugational suffixes (see e.g. Gaden 1913, Labouret 1952, Arnott 1970a, Sylla 1982, Ka 1984, McIntosh 1984, Hilaire 1986, Endresen 1993b). The conjugational suffixes express conjugational categories, such as the exhortative, the relative completive, the middle subjunctive, the imperative etc. The majority of the conjugational categories is formed by a verbal suffix added to the verb stem. In addition, some specific conjugational categories combine with a modal adverb preceding the verb form. The verbal conjugational suffixes are considered to be fused morphemes. McIntosh (1984:6) uses the term VAP marker for the conjugational suffixes. VAP is the abbreviation for Voice-Aspect-Polarity, indicating the semantic content of these verbal suffixes. But these conjugational suffixes also convey information about mood and discourse perspective. In this thesis the abbreviation CS is used for the verbal conjugational suffixes, because the abbreviation VAPMD-marker for Voice-Aspect-Polarity-Mood-Discourse marker would be too long.

The result of treating the conjugational suffixes as monomorphemic is that Fulfulde grammarians enumerate about 30 strikingly similar conjugational morphemes. In a further analysis of the verbal suffixes in Maasina (section 5.5), it is demonstrated that these conjugational markers are not monomorphemic, but that these markers consist of several morphemes. These morphemes coincide with the semantic categories expressed in the conjugational verbal markers, as listed below.

semantic properties encoded in verbal markers

voice:	active vs. middle vs. passive
aspect:	completive vs. incompletive
polarity:	affirmative vs. negative
tense:	past vs. non-past (present)
mood:	indicative vs. imperative vs. exhortative vs. subjunctive vs. indefinite
discourse:	emphatic (focused[1]) vs. non-emphatic
	relative (focalizing[2]) vs. non-relative

The verbal markers must be polymorphemic, although phonological fusion has made the structure of the verbal markers very obscure. An analysis of their underlying structure should result in a more limited number of morphemes. However, the combinations of these morphemes, underlying the conjugational markers, are not very transparent.

Therefore, for expository reasons, the description of the Maasina verbal system will first follow the traditional analysis of verbal conjugations. The verbal conjugations are treated separately, the different allomorphs of each marker are given with a few examples indicating the use and meaning of the marker in question. This description of the verbal conjugations will largely follow the terms used by McIntosh (1984) in her description of Kaceccereere. The focus lies on the phonological shape of the conjugational suffixes and their allomorphy.

Following the listing of the many conjugational suffixes, an effort will be made to break up these conjugational suffixes into morphemes corresponding to the transparent semantic and syntactic categories, based on the McIntosh's description (1984:138). These conjugational suffixes expressing voice, aspect, polarity, mood, and discourse perspectives are probably not monomorphemic (see Mohamadou 1989, Endresen 1993b), also because the forms expressing different combinations of these semantic properties are so very similar. The names and abbreviations of the different conjugational suffixes that occur in the verb system in Maasina are given in the table below in alphabetical order.

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[1] Focussed means that the verb containing this marker recieves focus, it is emphasized.

[2] Focalizing means that the verb containing this marker indicates that the complement preceding the verb is focused. The verb is not emphasized itself, but the verb focalizes the preceding complement. This is sometimes also called pre-verb focus.

Conjugational categories in Maasina Fulfulde:

1	COMPL	-ii	completive
2	EXH	-u	exhortative
3	INDEF	-uma	indefinite
4	INCOMPL	-an	incompletive
5	IMPsg	-u-ʔ	imperative singular
6	IMPpl	-ɛɛ-ʔ	imperative plural
7	M.COMPL	-ikɛ, -iima	middle completive
8	M.EXH	-ɔ	middle exhortative
9	M.INDEF	-ɔɔma	middle indefinite
10	M.INCOMPL	-ɔtɔ	middle incompletive
11	M.IMPsg	-a-ʔ	middle imperative singular
12	M.R.COMPL	-ii-ʔ	middle relative completive
13	M.R.INCOMPL	-ɔtɔɔ-ʔ	middle relative incompletive
14	M.SUB	-ɔɔ-ʔ	middle subjunctive
15	M.VF	-i	middle verb focus
16	NEG	-aa	negative
17	N.COMPL	-aali, -aay	negative completive
18	N.INCOMPL	-ataa	negative incompletive
19	N.M.COMPL	-aaki	negative middle completive
20	N.M.INCOMPL	-ataakɔ	negative middle incompletive
21	N.P.COMPL	-aaka	negative passive completive
22	N.P.INCOMPL	-ataakɛ	negative passive incompletive
23	P.COMPL	-aama	passive completive
24	P.INCOMPL	-ɛtɛ	passive incompletive
25	P.R.INCOMPL	-ɛtɛɛ-ʔ	passive relative incompletive
26	P.R.COMPL	-aa-ʔ	passive relative completive
27	P.SUB	-ɛɛ-ʔ	passive subjunctive
28	P.VF	-a	passive verb focus
29	R.COMPL	-i-ʔ	relative completive
30	R.INCOMPL	-ata-ʔ	relative incompletive
31	SUB	-a-ʔ	subjunctive
32	VF	-u	verb focus

The verbal marker of the past tense (PAST) does not form a conjugational category by itself, it appears only in combination with other conjugational suffixes. The past tense marker can co-occur with practically all indicative conjugations. The past tense marker is discussed separately in section 5.5.1.2.

There are some differences between the labels given in this thesis to the verbal conjugational suffixes and the names of the VAP markers by McIntosh. The main deviation from McIntosh is that in this study the "stative" and the "progressive" are not treated as separate conjugations (McIntosh 1984:78). The form that characterizes the stative and progressive conjugation is the word **ʔana**. This morpheme is an independent word, not a verbal marker. The locative **ʔana** signals that the event expressed by the verb form which it

precedes takes place over a span of time, not in a single moment. The locative copula expresses duration when it combines with the subjunctive or the relative completive. In this thesis the stative and the progressive are not treated as separate conjugational categories. The progressive is analyzed as a combination of the subjunctive preceded by the locative, the stative is described as a combination of the locative and the relative completive (see section 5.4.2, section 5.4.8 and section 5.6.1.2).

In this study conjugational markers which are otherwise unmarked for voice are understood to be in the active voice. The absence of the relative, which expresses the semantic notion of focalization of the element preceding the verb, indicates that no focalization occurs. McIntosh's overt term "general" for the non-relative is not used in naming the verbal conjugational suffixes. Both "general" and "active voice" are not employed because they are considered to be the unmarked values of voice and discourse.

Because this study describes the Maasina dialect, and because there is no continuative imperative in Maasina, the terms "ordinary" and "continuative" are unnecessary distinctions in the description of the imperative markers. The imperatives in Maasina are the same as the "ordinary" imperatives in Kaceccereere.

The term "emphatic" is replaced with verb focus, specifying that it is the verb that gets emphasis when it is combined with the verbal conjugational suffix with this name. The term completive is overtly indicated in the name "emphatic completive" by McIntosh. The completive notion is indeed present in this marker, here called verb focus. What is called the "vague incompletive" by McIntosh is called here the indefinite incompletive, or simply the indefinite. An example of the indefinite suffix for passive verbs (with the form *-**εεma** in Kaceccereere) is not found in the Maasina data.

For the naming of the verbal conjugational suffixes, only the most prominent characteristics of these suffixes are used. For the same reason the subjunctive is not labelled as incompletive, although McIntosh is right when she states that the semantic notion incompletive is expressed in the verbal conjugational suffix of the subjunctive.

In sections 5.5.1 till 5.5.10 the allomorphy of the conjugational suffixes is described, with a brief indication of their function and meaning. The allomorphy is evident when the conjugational suffixes combine with other morphemes, such as the past tense marker, or pronouns.

In Maasina, there are twelve conjugational categories characterized by the presence of final glottality in sentence final position. All verbal conjugational suffixes that are imperative, relative, and subjunctive are characterized by final glottality. The final glottality is marked in the examples given, but only when the verb form occurs at the end of a sentence.

The verbal conjugations of the relative and subjunctive conjugations are characterized by inversion. These conjugations also group together because they share the characteristic of final glottality. Inversion in Fulfulde means that the subject pronoun follows the verb stem as a pronominal affix within the verbal word. This inversion takes place with certain personal pronouns only. The paradigms showing inversion are given for all the relevant conjugations characterized by inversion, because the forms of the inverted subject pronouns are not identical in combination with the different conjugations, and because the inverted subjects often lead to different allomorphs of the verbal markers. In general an inverted subject pronoun will cause shortening of the conjugational suffix. Inversion also means that

the initial consonant of the verbal stem will have a prenasalized voiced or a plosive voiceless consonant.

5.4.1 IMPERATIVE

There are three imperative conjugational suffixes. The imperative directed to one single person has a different form for the active voice verbs and the middle voice verbs. There is only one form of the plural imperative, directed to more than one person. The imperative forms are marked by final glottality.

The imperative marker for the singular of active voice verbs (IMPsg) has three forms: **-u**, Ø (zero), and **-in**. The vowel [**u**] can be deleted when this deletion does not result in a violation of the syllable structure conditions. These are not violated when there is only one final consonant of the verb stem, and when this consonant is not an obstruent. The vowel **-u** is always deleted when the verb stem ends in a CVC structure and has in a sonorant as the final consonant as in the first example of the verb **war** 'come!'.

IMPsg **-u**

war, ʔe ley juuɗɛ ʔam ɗɛɛ-ʔ
come-IMPsg with in arms mine the-FG
'Come into my arms!'

When all the syllable structure conditions are met, but the structure of the verb stem is CVVC, then there is variation; the IMPsg conjugational suffix can be either there (**-u**) or it can be deleted (Ø, zero). In the following examples the CVVC verb stem does end in a single sonorant consonant, but the vowel [**u**] does not have to be deleted. This again is an indication that, although the syllable structure CVVC is possible, it is considered to be less well-formed than the CVC or CVV syllable structure. The vowel [**u**] remains to prevent the otherwise less well-formed syllable CVVC.

IMPsg. allomorphy Ø (zero)/**-u**

dɔɔm seeɗa
wait-IMPsg little
'Wait a little!'

doom-u seeɗa
wait-IMPsg little
'Wait a little!'

The IMPsg **-u** can never be deleted when the verb stem ends in two consonants, because a syllable structure condition says that the syllable coda can only take one consonant.

IMPsg **-u**

lonn-u liccere ⁿdɛ-ʔ
wash-IMPsg rag the-FG
'Wash the rag!'

The vowel **-u** is also omitted when the imperative is followed by a vowel initial morpheme, such as the object pronoun **-am** 'me'.

IMPsg Ø (zero)

cɛɗɗɔ, dɔɔm-am fa mi ɟɛɛwɔy-a bam^{m}baraŋkɛ mɛn
Bozo wait-IMPsg-me so that I go look for-SUB Bambara our
'Bozo, wait for me to look for our Bambara.'

The morpheme **-in** occurs in the singular imperative form of verb stems with a -VC- form of the inchoative, reversive, and comitative extension. The same morpheme **-in** occurs also in the infinitive of verb stems that are combined with these extensions **-iɗ-**, **-id-** or **-it-**. These extended verb stems all end in an obstruent.

IMPsg **-in**

maɓɓ-it-in
cover-REV-IMPsg
'Uncover.'

ʔuddit-in dammugal, ^{n}gal ʔuddit-aaki
open-IMPsg door it be open-N.M.COMPL
'Open the door, it is not open.'

The verb stems **ʔudd-it-** 'open' and **maɓɓ-it-** 'uncover' are enlarged with the extension **-it-** and followed by the conjugational suffix **-in**. The imperative adds this suppletive morpheme **-in** to the verb stem, to prevent the occurrence of a single obstruent in syllable final position. It is not clear why the suppletive morpheme **-in** is added here. A word final obstruent could also have been prevented by the form **-u**. The IMPsg form **-u** occurs in the form **maɓɓ-ut-u** 'uncover' in the Fulfulde dialect of Gombe. The morpheme **-in-** also occurs in the infinitive of the verb **ʔuddit+in+dɛ** [**ʔudditin^{n}dɛ**] 'to open'. Here also, the form **-in** prevents the occurrence of an obstruent syllable finally. In the infinitive the form **-in** also prevents the occurrence of an ill-formed sequence of three unstressed light syllables.

The morpheme **-in** occurring in infinitives and imperatives of verbs with stems ending in the extensions **-iɗ-**, **-it-** or **-id-** is probably a duplication of these extensions, where the final alveolar consonant changed into a nasal to meet the condition that the final consonant in a syllable should be sonorant. This resulted in the form **-in**. The suppletive form **-in** of the imperative singular should not be confused with the causative extension with the same form **-in-**. The verb stems with the homonymous causative extension **-in-** do not add this allomorph in the imperative and infinitive. This is because the causative extension **-in-** can occur word finally without violating the syllable structure conditions.

IMPsg Ø (zero)

hebb-in lɔɔ^{n}dɛ ^{n}dɛɛ-ʔ
be full+INT-CAUS-IMPsg water pot that-FG
'Fill that water pot.'

The stem **hɛɛw-** 'be full' combined with the intensive and the causative extensions to give the verb stem **hebbin-** 'fill'. The morpheme **-in** occurring in the imperative is identical in form to the causative **-in-**, but the distribution of the former **-in** is restricted and it does not display any additional meaning. The morpheme **-in** that occurs only in the imperative and infinitive of verb stems enlarged with an extension ending in an obstruent does not have a causative meaning. It appears to be present to avoid violations of the syllable structure conditions.

The singular imperative for the middle voice (M.IMPsg) is formed by the mopheme **-a**.

M.IMPsg **-a**

war, jɔɔɗ-a dow kɔyɗɛ baaba ma ɗɛɛ-ʔ
come-IMPsg, sit-M.IMPsg on legs father your the-FG
'Come and sit on the lap of your father.'

yin-a-ʔ
swim-M.IMPsg-FG
'Swim!'

The conjugational suffix of the middle voice imperative singular has only one form, there are no allomorphs.

The imperative marker has only one form in the plural: **-ɛɛ** (IMPpl). It combines with verb stems in both active and middle voice. The plural imperative conjugation requires the prenasalization of the initial consonant of the stem. This prenasalization normally occurs when the subject is plural, or when the subject follows the verb stem. Although no subject seems to be present, the second person plural to which this imperative is addressed might condition the prenasalization of the first consonant of the stem. It is also possible that the suffix **-ɛɛ** itself has to be interpreted as the second person plural subject, conditioning the initial prenasalization by its position following the verb stem.

IMPpl **-ɛɛ**

ⁿdɔkk-ɛr-ɛɛ kam sikkɔrɔ sɛɛɗa
give-CIRC-IMPpl me sugar little
'Give me a little of your (pl.) sugar.'

The formation of the plural imperative of middle voice verbs is the same as the formation of the plural imperative for active voice verbs.

IMPpl -**ɛɛ**

ⁿjin-ɛɛ-ʔ
swim-IMPpl-FG
'Swim!'

In the plural imperative of the middle voice verb **yin-aadɛ** 'to swim' there is no trace of a morpheme marking the middle voice. There is no form of the imperative for passive verbs.

5.4.2 SUBJUNCTIVE

The subjunctive has different conjugational suffixes for the active, middle and passive voice. The form of the subjunctive conjugational suffixes is characterized by final glottality. The subjunctive displays inversion. The Verb-Subject order occurs when the subject is -**aa** 'you' (2sg.), -**ɛn** 'we' (1pl. inclusive) -**ɔn** 'you' (2pl.). The forms of the subjunctive conjugational suffixes are given below. The function of the subjunctive in the three voices does not differ much. The subjunctive is used to express commands and exhortations, it can also be used to express purpose and permission (McIntosh 1984:141-3). The subjunctive expresses the fact that the speaker wants and expects the action expressed by the verb to take place. The subjunctive is required after certain modal particles that express obligation or necessity (cf. Arnott 1961). The negative of the subjunctive is formed by the sentence initial negative modal predicate **pati**, sometimes the words **fati** or **wɔta** are used. There is no special negative conjugational suffix for the subjunctive (McIntosh 1984:58).

The subjunctive marker attached to active verbs is formed by the suffix -**a**. The subjunctive, abbreviated as SUB has the allomorphs -**a**, **u** and Ø (zero). The examples below demonstrate the use of the subjunctive as a command, an exhortation, and expressing expectation.

SUB -**a**; command

pati mɔ war-a-ʔ
not he come-SUB
'He should not come.'

SUB -**a**; expectation

sɔ naaⁿgɛ fuɗ-ii, habiiba fin-a naat-a hɔggɔ ɓir-a-ʔ
when sun rise-COMPL Habiiba awake-SUB enter-SUB kraal milk-SUB-FG
'When the sun has risen, Habiiba would wake up, enter the kraal and milk'
(Labatut 1986a:37)

SUB -**a**; exhortation

hɔmɔ fuʔ haɓ-an-a hɔɔrɛ mun
who all fight-DAT-SUB head his
'Everybody should fight for himself.'

Certain modal predicates require the subjunctive, the example below expresses obligation with the adverbial phrase **sɔ wanaa**.

SUB -**a** with **sɔ wanaa**; obligation

sɔ wanaa mɔ war-a-ʔ
if be-N he come-SUB-FG
'He has to come.'

The combination of the subjunctive conjugational suffix with the locative **ʔana** is described in the literature as the progressive conjugation. The locative expresses the duration, the on-going aspect of the event. In combination with the locative, the subjunctive expresses expectation. When an event is expected, it still has to take place. This makes the meaning of the subjunctive in a non-indicative mood very similar to that of the incompletive in the indicative mood.

SUB -**a** with locative; expected on-going action

gitɛ maa ɗɛɛ ʔana ⁿjalbit-a hɔnɔ ⁿdiyam kaŋŋɛ kalana-ʔ
eyes your the LOC sparkle-SUB like water gold Kalana-FG
'Your eyes are sparkling like the golden waters of Kalana.'

All the above examples are given with a 3rd person subject. When a verb form in the subjunctive occurs with the 2sg., 1pl. incl. and 2pl. personal pronouns as subject, inversion occurs. The subject is then a verbal suffix. And verbal suffixes alter the form of the conjugational suffix. The allomorph of the subjunctive conjugational suffix of the active voice is Ø (zero) when the subject follows the verb stem as a pronominal suffix. The specific forms of the subject pronouns and the allomorphs of verbal suffixes occurring when inversion occurs in the subjunctive are given in the following table.

SV and VS order in the subjunctive:

singular		
1	**mi hɔkk-a-ʔ**	'I should give'
2	**kɔkk-aa-ʔ**	'you sg. should give'
3	**mɔ hɔkk-a-ʔ**	'he/she should give'
plural		
1	**min kɔkk-a-ʔ**	'we excl. should give'
1+2	**kɔkk-ɛn-ʔ**	'we incl. should give'
2	**kɔkk-ɔn-ʔ**	'you pl. should give'
3	**ɓɛ kɔkk-a-ʔ**	'they should give'

When the forms of the subjunctive for the 1+2 and 2 person plural occur in utterance final position, the final vowels are both nasalized and laryngealized.

1+2	[**kɔkkɛ̃**]	'we incl. should give'
2	[**kɔkkɔ̃**]	'you pl. should give'

The form of the object pronoun for the second person singular in the subjunctive of the active voice can be both **-ɛ** 'you' and **maa** 'you'. The object pronoun **-ɛ** 'you' can only appear when no other verbal suffix occurs. The object pronoun **-ɛ** 'you' therefore does not occur in the inverted forms. When the object pronoun **-ɛ** does occur the verbal conjugational suffix of the subjunctive **-a** is reduced to Ø (zero).

SUB Ø zero; in order to, so that

jɔnnɔɔ, ɗal, mi tin^{n}din-ɛ sɛɛɗa kɔ woni ʔe bittol
now leave-IMPsg I explain-SUB-you little what be-R.COMPL with leaving
'Now stop (talking), so that I explain to you about leaving.' (Tioulenta 1980a:10)

McIntosh (1984:249) doubts the usefulness of a distinction of mood between indicative and non-indicative, because there is no obvious morphological exponent that distinguishes the two, and because the subjunctive seems to straddle the two moods. When the subjunctive expresses some kind of obligation, it is clearly non-indicative, like the imperative and the exhortative. When the subjunctive is used in the narrative or when it is used in combination with a locative to express an on-going action, it seems to have an indicative meaning. The latter impression might be wrong. An indication that the subjunctive is non-indicative is the fact that the past tense marker, which only combines with indicative verb forms, is not compatible with the subjunctive. Sentences where the locative and the subjunctive together express an ongoing action or process substitute the verbal conjugational suffix of the subjunctive with that of the relative incompletive when the past tense marker **-nɔ** is attached.

R.INCOMPL + PAST (no SUB + PAST!)

sukaaɓɛ ʔana jal-an-nɔɔ-ʔ
children LOC laugh-R.INCOMPL-PAST-FG
'The children were laughing.'

being the past of SUB

sukaaɓɛ ʔana jal-a-ʔ
children LOC laugh-SUB-FG
'The children are laughing.'

The past tense marker **-nɔ** provides a good criterion for the distinction between indicative and non-indicative moods: only verb forms in the indicative mood can refer to events in the past.

In the middle voice the subjunctive (M.SUB) is formed by the suffix **-ɔɔ**. The allomorphs of the subjunctive conjugational suffix for the middle voice are **-ɔɔ** and **-ɔ**. The following example shows a use of the subjunctive to express the idea that the subject is expected to sit down.

M.SUB **-ɔɔ**; exhortation

ʔɔ jɔɔɗ-ɔɔ-ʔ
he sit-M.SUB-FG
'He should sit down.'

The allomorph **-ɔɔ** of the subjunctive conjugational suffix in the middle voice occurs word finally. The following example shows the middle voice subjunctive with a modal predicate expressing obligation.

M.SUB **-ɔɔ** with **sanaa**; obligation

sanaa mɔ jɔɔɗ-ɔɔ ɗɔɔ-ʔ
if-be-NEG he sit-SUB here-FG
'He has to sit here.'

The allomorph of the middle voice subjunctive is **-ɔ** when it occurs in combination with other verbal suffixes. This is the case when the 2sg., 1pl. incl. and 2pl. personal subject pronouns are pronominal suffixes.

SV and VS order in the middle voice subjunctive

singular		
1	**mi gaaj-ɔɔ-ʔ**	'I should converse'
2	**ⁿgaaj-ɔ-ɗaa-ʔ**	'you sg. should converse'
3	**mɔ gaaj-ɔɔ-ʔ**	'he/she should converse'
plural		
1	**min ⁿgaaj-ɔɔ-ʔ**	'we excl. should converse'
1+2	**ⁿgaaj-ɔ-ɗɛn-ʔ**	'we incl. should converse'
2	**ⁿgaaj-ɔ-ɗɔn-ʔ**	'you pl. should converse'
3	**ɓɛ ⁿgaaj-ɔɔ-ʔ**	'they should converse'

As explained above, the subjunctive does not combine with the past tense marker. The following example shows that an ongoing action or process, expressed in the present with the locative and the subjunctive, uses the middle relative completive for the past.

M.R.INCOMPL + PAST (no M.SUB + PAST!)

ʔɔmɔ fill-ɔtɔ-nɔɔ-ʔ
LOC+he/she tell-M.R.INCOMPL-PAST-FG
'He was telling a story'. ["Il racontais."]

In the passive voice form of the subjunctive (P.SUB), the marker is -**ɛɛ**. The allomorphs of the subjunctive conjugational suffix for the middle voice are -**ɛɛ** and -**ɛ**-. The distribution is quite similar to the other subjunctive markers. The allomorph -**ɛɛ** occurs in word final position. The examples below show the subjunctive in combination with the locative, forming the progressive conjugation.

P.SUB -**ɛɛ** with locative; ongoing action

mi nan-ii ʔin^{n}dɛ maa ʔana nɔdd-ɛɛ-ʔ
I hear-COMPL name your LOC call-P.SUB-FG
'I heard your name being called.'

P.SUB -**ɛɛ** with **kanaa**; obligation

kanaa mɔ naŋ^{n}g-ɛɛ-ʔ
MP he catch-P.SUB-FG
'He must be caught.'

The allomorph -**ɛ** of the passive subjunctive conjugational suffix occurs when other verbal suffixes attach to the verb form, like in the inverted VS of the 2sg., 1pl. incl. and 2pl. subject pronouns.

SV and VS order in the passive voice subjunctive

singular		
1	**mi wiy-ɛɛ-ʔ**	'I should be called'
2	**^{m}biy-ɛ-ɗaa-ʔ**	'you sg. should be called'
3	**mɔ wiy-ɛɛ-ʔ**	'he/she should be called'
plural		
1	**min ^{m}biy-ɛɛ-ʔ**	'we excl. should be called'
1+2	**^{m}biy-ɛ-ɗɛn-ʔ**	'we incl. should be called'
2	**^{m}biy-ɛ-ɗɔn-ʔ**	'you pl. should be called'
3	**ɓɛ ^{m}biy-ɛɛ-ʔ**	'they should be called'

An ongoing action or process substitutes the passive subjunctive with the passive relative incompletive when the event referred to took place in the past. The reference to a moment in the past is expressed by the past tense marker **-nɔɔ**.

R.INCOMPL + PAST (no P.SUB + PAST!)

suka ʔana lɔɔt-ɛtɛ-nɔɔ-ʔ
child LOC wash-P.R.INCOMPL-PAST-FG
'The child was being washed.' ["On lavais l'enfant."]

being the past of:

P.SUB -ɛɛ with locative; ongoing action

suka ʔɔɔ ʔana lɔɔt-ɛɛ-ʔ
child the LOC wash-P.SUB
'The child is being washed.'

In conclusion it can be stated that the underlying forms of the subjunctive are ***a** for active voice verbs, ***ɔɔ** for middle voice verbs and ***ɛɛ** for passive voice verbs. The vowel [**a**] of the active forms is deleted before vowel initial verbal clitics, such as the inverted subject pronouns and the object clitic **-ɛ** 'you (sg)'. The vowel of the middle and passive forms is shortened when they occur before an inverted subject pronominal suffix that forms a heavy syllable.

5.4.3 VERB FOCUS

The verb focus is called the emphatic past by Arnott (1970a:267) and the emphatic completive by McIntosh (1984:134). The verb focus is used to emphasize the verb form. It can express contrastive and affirmative focus. Often the term "really" [vraiment] is added in the translations of forms with verb focus. The verb focus emphasizes the fact that the action or process expressed in the verb really took place. It is therefore not strange that the verb focus can only be found in the completive aspect.

The allomorphs of the verb focus of active voice verbs (VF) are **-u** and Ø (zero).

VF **-u**

ʔɔ fiy-aay suka ʔɔ, ʔɔ wall-u mɔ
he beat-N.COMPL child the he help-VF it
'He didn't beat the child, he HELPED it!'

sɔ wɔn miil-ɗɔ haala mun kaal-mi, ᵐboof-u
if is think-CL word his speak-R.COMPL-I err-VF
'If there is someone who thinks it is his word that I'm telling, he is MISTAKEN!'
(Tioulenta 1980a:6)

The allomorph **-u** of the Verb Focus can be deleted when syllable structure conditions are not violated. The following sentences are identical in meaning. The **[m]** is allowed to occur in syllable final position, therefore the VF allomorph **-u** can (but does not have to) be deleted.

VF allomorphy **-u**, Ø (zero)

ʔɔ ɲaam tan	=	**ʔɔ ɲaam-u tan**
he eat-VF only		he eat-VF only
'He has only EATEN!'		
ʔɔ war tan	=	**ʔɔ war-u tan**
he come-VF only		he come-VF only
'He has only COME!'		

The verbal marker **-u** does not only occur when the verb stem final consonant is an obstruent (as in the examples below), it can also occur when the stem final consonant is a sonorant (as in the examples above). Coda weakening will occur when the vowel **[u]** is deleted after an obstruent final verb stem.

VF allomorphy **-u**, Ø (zero)

ʔɔ hɛm tan	=	**ʔɔ heɓ-u tan**
he get-VF only		he get-VF only
'He has only GOT (it).'		
ʔɔ wan tan	=	**ʔɔ waɗ-u tan**
he do-VF only		he do-VF only
'He has only DONE (it).'		

The obstruents **[ɓ]** and **[ɗ]** are not allowed in syllable final position, they become nasal due to coda weakening rules.

The verb focus marker for the middle voice (M.VF) has the form **-i**, as is shown in the following example.

M.VF **-i**

ʔa ɗaan-i na, naa ʔa ɗaan-t-iŋkin-tɔɔ-ɗɔ
you sg sleep-M.VF qp or you sleep-REV-SIM-M.R.INCOMPL-CL
'Are you really ASLEEP, or are you pretending to be asleep?'

Examples of sentences with contrastive stress on the verb were often translated into Fulfulde with participles. The above sentence should be compared to the next example which contains a similar message.

ʔa ɗaan-ii-ɗɔ na, naa ʔa ɗaan-t-iŋkin-tɔɔ-ɗɔ
you sg sleep-M.R.COMPL-CL qp or you sleep-REV-SIM-M.R.INCOMPL-CL
'Are you asleep, or are you pretending to be asleep?'

There is a slight difference in meaning between the two sentences which is expressed by the word "really" in the translation of the previous example.

The passive-voice verb-focus marker (P.VF) has the form **-a**, as shown in the following example.

P.VF **-a**

mi hɔkk-a ɗum, mi wan-aa lubb-aa-ɗɔ ɗum
I give-P.VF it I be-NEG lend-P.R.COMPL-CL it
'It was GIVEN to me, it was not lent to me.'

So the forms of the verb focus are **-u** or Ø (zero) for the active voice, **-i** for the middle voice, and **-a** for the passive voice.

5.4.4 EXHORTATIVE

The exhortative is called the desiderative by Arnott (1970a:51). McIntosh (1984:141) introduced the term exhortative which is also used in this study. The exhortative combines with only active and middle voice verbs. It expresses a kind of exhortation, which is however more like a wish (see section 5.5.6) than the meaning of exhortation which can be expressed by the subjunctive (see section 5.4.2). The form of the exhortative for active verb forms (EXH) is **-u**. The first example is a fixed expression, said as a prayer for a child on its name-giving day.

EXH **-u**

ʔalla wuur-n-u mɔ, bark-in-a mɔ
God live-CAUS-EXH him/her bless-CAUS-SUB him/her
'May God give him/her a long life, and bless him/her'.

ʔɛn koot-u
we incl. go home-EXH
'Let's go back, let's go home.'

The allomorph of the exhortative of the active voice is zero when the verb stem final consonant is allowed syllable finally. The form of the exhortative is also zero if an active verb stem combines with the object pronoun **-ɛ** 'you sg.'. The particle **yɔ** 'that, may' often precedes the exhortative conjugation.

EXH Ø (zero)

yɔ ʔalla bark-in mɔ	**yɔ ʔalla rɛɛn-ɛ**
that God bless-CAUS him/her	that God protect-you
'May God bless him/her.'	'May God protect you'

The active form of the exhortative (EXH) is homonymous with the marking for the active verb focus (VF). The active form of the exhortative only differs from the active imperative singular (IMPsg) in that the imperative is marked by final glotallity. There is only a clear difference in form between the middle and passive verb forms of these conjugational suffixes.

The form of the exhortative for the middle voice is -ɔ. The first sentence is a fixed expression that is pronounced when somebody has died.

M.EXH -ɔ

yɔ ʔalla hinn-ɔ mɔ	**yɔ ʔa rɛɛn-ɔ**
may God take care-M.EXH	him/her may you guard oneself-M.EXH
'May God take care of him/her.'	'May nothing bad happen to you'

There is no form of the exhortative in the passive voice. The passive voice and the exhortative are semantically incompatible in Fulfulde because the patient argument of a verb can not be urged to undergo the action or process of the passive verb. Only the agent can be urged to do something. So the exhortative can only combine with active voice and middle voice verbs where the subject is also the agent. The forms of the exhortative are **-u** and Ø (zero) for the active voice and -ɔ for the middle voice.

5.4.5 INCOMPLETIVE

The incompleteive conjugations indicate that the action or process expressed by the verb is not completed. Usually it expresses habitual events and events that take place in the future. The incompleteive marker for the active voice (INCOMPL) is the same as the general incompleteive marker described by McIntosh (1984:126). Its form is **-an** when no other verbal suffixes are present. It is frequently realized as a nasalized vowel, like all word final vowel-nasal sequences.

INCOMPL **-an** [-ã]; habitual and future

ɲanⁿdɛ fuʔ mɔ yar-an kɔsam
day all she drink-INCOMPL milk
'Everyday she drinks milk.'

yiilt-a, ʔa yiy-an kɔ ʔanⁿd-u-ɗaa
walk around-M.IMPsg you see-INCOMPL what know-R.COMPL-you
'Walk around, you'll see what you know.'

The allomorphs of the incompletive marker (INCOMPL) **-ɛt-**, **-t-**, **-am-** closely resemble the allomorphs of the relative incompletive marker (see section 5.4.6). The allomorph **-ɛt-** occurs before the object pronoun **-ɛ** 'you (sg.)'.

INCOMPL **-ɛt-**

mi fiy-ɛt-ɛ
I beat-INCOMPL-you
'I will beat you.'

This allomorph can be shortened to **-t-** when it follows a verb stem enlarged with an extension that ends in a sonorant consonant.

INCOMPL **-t-**

mi jaŋⁿgin-t-ɛ ⁿgol faa ᵐbaaw-aa fadɛ maa ʔimmaa-dɛ
I teach-INCOMPL-you it so that can-SUB you before you leave-INF
'I will explain it to you, so that you will be knowledgeable before you leave.'

If the stem is expanded with a verbal extension, but the final consonant is an obstruent, then the vowel initial marker of the INCOMPL is used.

INCOMPL **-ɛt-**

mi tippit-ɛt-ɛ balɔn
I throw-REV-INCOMPL-you ball
'I will throw you the ball once more.'

Before the object pronoun **mɔ** 'him/her', the incompletive marker has the form **-am-**.

INCOMPL **-am-**

mi fiy-am mɔ
I beat-INCOMPL him/her
'I will beat him/her.'

The morpheme of the incompletive has the form **-an-** when it occurs before the past tense marker **-nɔ**. The incompletive combines with the short form **-nɔ** of the past tense marker.

INCOMPL **-an** with past tense; uncompleted action in the past

ʔɔ sɛɛr-an-nɔ mɔ
he divorce-INCOMPL-PAST her
'He divorced her.'

ʔɔ wii ʔa war-an-nɔ
he/she say+COMPL you come-INCOMPL-PAST
'He has said you would come'

The possibility of the combination of the incompletive marker with the past tense marker confirms the meaning expressed as incompletive, not as present or future. The past tense marker only changes the point of reference to the past, so at the moment in the past referred to, the coming of the you-person in the second sentence, and the divorce in the first sentence, had not been completed.

The underlying form of the incompletive marker is ***-at-**, all other forms can be derived by applying phonological rules. The derivation of the allomorphs of the incompletive marker (INCOMPL) is summarized below.

***at > an**	**/ __ #**	syllable final *[**t**] becomes sonorant [**n**]
***at > an**	**/ __ n**	total assimilation of syllable final *[**t**]
***at > am**	**/ __ m**	total assimilation of syllable final *[**t**]
***at > ɛt**	**/ __ ɛ**	total assimilation of unstressed short *[**a**]
***at > t**	**/ in __**	loss of vowel *[**a**] in a sequence of three unstressed light syllables, preceded by a verbal extension

In the middle voice, the allomorphs of the incompletive marker (M.INCOMPL) are **-ɔtɔ** and **-tɔ**. The allomorph **-tɔ** only occurs after a verb stem which is enlarged by a verbal extension with a VC form. The form **-ɔtɔ** is used elsewhere.

M.INCOMPL **-tɔ**

sɔ ʔɔ sippit-ii kɔsam makkɔ, ʔɔ wirfitit-tɔ cuudi̇ʔ
If she sell-REV-COMPL milk her she return-REV-M.INCOMPL houses-FG
'If she has sold her milk, she will return home.'

M.INCOMPL **-ɔtɔ**

ʔɔ jɔɔd̈-ɔtɔ
he/she sit-M.INCOMPL
'He will sit down.'

mɔ fill-ɔtɔ
he/she tell-M.INCOMPL
'He will tell (a story).'

The middle voice incompletive marker has the form **-ɔtɔ** when it combines with the short form **nɔ** of the past tense marker.

M.INCOMPL ***ɔtɔ** with PAST **nɔ**

mɔ ɓɔɔr-n-ɔtɔ-nɔ na ?
he/she dress-CAUS-M.INCOMPL-PAST qp
'Did he dress himself?'

mɔ fill-ɔn-tɔ-nɔ ʔɔɔn pillol
he/she tell-DAT-M.INCOMPL-PAST him/her story
'He would tell him a story.'

In the second example, the first vowel of the underlying form of the middle voice completive marker ***ɔtɔ** is deleted after a verb stem with a -VC- extension because the extension and the conjugational suffix ***ɔtɔ** cannot form a sequence of three light syllables without one of the light syllables being stressed. Such a sequence is ill-formed in Fulfulde. The short vowel of the light syllable in the middle is deleted to form a sequence of a heavy syllable followed by a light syllable (see section 4.2.2). Thus the sequences ***ɔn-ɔtɔ** < ***an-ɔtɔ** and ***it-ɔtɔ** become **-ɔntɔ** and **-ittɔ**, resulting in the predictable allomorph **-tɔ**.

The completive marker for the passive voice (P.INCOMPL) has the allomorphs **-ɛtɛ** and **-tɛ**.

P.INCOMPL **-ɛtɛ**

jantol	**nan-ɛtɛ**		**sukaaɓɛ**	**ɓɛɛ**	**lɔɔtɛtɛ**	**na**
history	hear-P.INCOMPL		children	the	wash-P.INCOMPL	qp
'The history will be heard.'			'Will the children be washed?'			

The sequence of three light syllables **nanɛtɛ** 'will be heard' is not shortened to ***nan-tɛ** here. The first of the three short syllables is stressed. The first vowel of the passive incompletive marker **-ɛtɛ** is deleted in the following example:

P.INCOMPL **-tɛ**

ⁿgɔɔwaarɛ	**fijir-tɛ**
ball	play with-P.INCOMPL

'The ball is played with.'

Again it seems that the verb stem has to be enlarged with a verbal extension -VC- to cause the deletion of the first vowel of the passive incompletive marker (P.INCOMPL). The conclusion is therefore that the underlying form of the passive incompletive marker is ***ɛtɛ**, with a shortening rule occurring in a sequence of three unstressed light vowels. I have no example of a combination of the passive incompletive with the past tense marker.

5.4.6 RELATIVE INCOMPLETIVE

The relative incompletive marker (R.INCOMPL) has a large number of allomorphs. The allomorphs of the R.INCOMPL are **-ata**, **-ta**, **-ɛt-**, **-ɔt-**, **-ay-**, **-an-**, **-am-** . The relative incompletive marker is characterized by final glottality. The meaning of the relative incompletive marker (R.INCOMPL) only differs in its discourse function from the incompletive marker (INCOMPL). The relative incompletive form is used to put the first constituent in focus. This can be a noun phrase, a locative or a question word. Question words always have focus and are followed obligatorily by a relative verb conjugation. The incompletive indicates that the action of the verb is not completed. The full form **-ata**, also the underlying form of the relative incompletive, is used when there are no other verbal suffixes following the verb form. This means that the subject precedes the verb, and no past tense marker or object pronoun is attached to the verb.

R.INCOMPL -**ata**; habitual

hudɔ ʔɛ lamɗam ʔe ⁿdiyam ɓɛ tɛf-ata hitaaⁿdɛ fu-ʔ
grass and salt and water they search-R.INCOMPL year all-FG
'It's grass, salt and water that they search for every year.'

The form -**ta** is also used when no subject pronoun, object pronoun or past tense marker follows the verb form. The difference in distribution between the marker -**ata** and -**ta** is that the latter occurs only and obligatorily following verb stems enlarged with a -VC- extension.

R.INCOMPL -**ta**; habitual

koɗum soot-t-in-ta fulɓɛ wɔɗɛɛɓɛ daabaaji munʔɛn ?
what buy-REV-CAUS-R.INCOMPL Fulbe red animals their
'What makes the nomadic Fulbe sell their animals?'

The verb stem **sɔɔd-** 'buy' in the verb form **soottinta** 'habitually causes to sell' is enlarged with the reversive extension -**t**-and the causative extension to form the verb stem **soottin-** 'to cause to sell'. The verb stem **sɔɔtt-** is often pronounced with a short vowel to avoid the less well-formed CVVC syllable structure. The initial vowel in the verbal marker -**ata** is not lost when it follows the verb root directly.

R.INCOMPL -**ata**

maⁿdɛ mɔ war-ata
when he come-R.INCOMPL
'When will he come?'

The verb form **warata** 'will come' is not shortened to ***warta** because the first syllable is stressed. The relative incompletive marker combines with the long form -**nɔɔ** of the past tense marker. In combination with the past tense marker -**nɔɔ**, the final consonant of the relative marker -**at-** assimilates to the first consonant of the past tense marker, resulting in the allomorph -**an-**.

R.INCOMPL -**an-** with past tense; simple past

dɛwtɛrɛ mɔ winⁿd-an-nɔɔ-ʔ
book he/she write-R.INCOMPL-PAST-FG
'It's a book that he wrote.'

In combination with the object pronouns the relative marker takes the form -**ata** except when it combines with the object pronoun -**ɛ** 'you (sg.)'. This object pronoun behaves as a clitic, shortening the relative marker to -**at-** and assimilating its vowel to -**ɛt-**.

R.INCOMPL -**ɛt**- with object pronoun -**ɛ** 'you sg'

ma^{n}dɛ dɛbbɔ hɔkk-ɛt-ɛ kɔ ɲaam-ɛtɛɛ ?
when woman give-R.INCOMPL-you what eat-P.R.INCOMPL
'When will the woman give you (sg.) something to eat?'

The other object pronouns are not clitic, they do not shorten the relative marker to -**at**-. For this reason all object pronouns except the 2nd person singular -**ɛ** are written as separate words, detached from the verb form. Below, an example with the object pronoun **ʔɔn** 'you pl.' is given.

R.INCOMPL -**ata** with object pronoun **ʔɔn** 'you pl.; future

ma^{n}dɛ dɛbbɔ hɔkk-ata ʔɔn kɔ ɲaam-ɛtɛɛ
when woman give-R.INCOMPL you pl. what eat-P.R.INCOMPL
'When will the woman give you (pl.) something to eat?'

The relative conjugations are characterized by the inversion of certain subject pronouns. When the inverted subject pronouns follow the relative marker, this results in different allomorphs. The vowel of the shortened relative marker -**at**- assimilates to the inverted subject pronouns -**ɛn** 'we (inclusive)' and -**ɔn** 'you (pl.)', thus the allomorphs -**ɛt**- and -**ɔt**- arise. Before the inverted subject pronoun -**mi** the final consonant of the relative marker assimilates to the initial consonant of the subject pronoun resulting in the allomorph -**am**-.

SV and VS order in the relative incompletive

singular		
1	**kɔkk-am-mi**	'I shall give'
2	**kɔkk-at-aa**	'you sg. will give'
3	**mɔ hɔkk-ata**	'he/she will give'
plural		
1	**min kɔkk-ata**	'we excl. shall give'
1+2	**kɔkk-ɛt-ɛn**	'we incl. shall give'
2	**kɔkk-ɔt-ɔn**	'you pl. will give'
3	**ɓɛ kɔkk-ata**	'they will give'

The forms **kɔkkɛtɛn** 'we shall give' and **kɔkkɔtɔn** 'you shall give' are mostly pronounced with a nasalized vowel because a VN sequence in word final position is phonetically realized as a nasalized vowel in Maasina, unless special stress falls on the word or a very careful and slow speech style is used. The allomorphy of the relative incompletive conjugational suffix (R.INCOMPL) is summarized below.

***ata** > **ta**	/ EXT __	vowel deletion after -VC- extension
***ata** > **at**	/ __ **-aa**	vowel deletion before subject affix 'you sg.'
***ata** > **an**	/ __ **-nɔɔ**	vowel deletion and assimilation of ***t** before PAST
***ata** > **am**	/ __ **-mi**	vowel deletion and assimilation of ***t** before subject affix 'I'
***ata** > **ɛt**	/ __ **-ɛ(n)**	vowel deletion and assimilation ***a** before object affix **-ɛ** 'you sg.' and before clitic subject pronoun **-ɛn** 'we incl.'
***ata** > **t**	/ EXT__V	vowel deletion after -VC- extension and vowel deletion before vowel initial pronominal affix
***ata** > **ata**	/ elsewhere	

The underlying form of the relative completive conjugational suffix is ***ata** when combining with active verbs.

The verbal marker for the middle voice relative incompletive (M.R.INCOMPL) has the allomorphs **-ɔtɔɔ**, **-ɔtɔ-**, **-tɔɔ**, **-tɔ**, **-otoo-** and **-too-**. The first vowel of the conjugational suffix ***ɔtɔɔ** is deleted when the verb stem ends in a verbal extension with the form -VC-.

M.R.INCOMPL **-tɔɔ**; future

jooni ɓɛ cɔm-ɔy-tɔɔ-ʔ
now they shop-ALT-M.R.INCOMPL-FG
'It's now that they will go shopping!'

The allomorphs that only differ from the other allomorphs in ATR value of the vowel (**-otoo-** and **-too-**) occur when they are followed by a verbal suffix that contains a vowel that is [+ATR] in the verbal word. The only [+ATR] verbal suffix that can follow within the verbal word is the subject pronoun of the first person singular **-mi**. This allomorph occurs because of the inversion that occurs in the verb form of the middle voice relative incompletive. In the relative incompletive the subject pronouns of the 1st and 2nd person singular and of the 1st (incl.) and 2nd person plural follow the verb stem. The allomorphs occurring in the paradigm with personal pronouns are given below.

SV and VS order in the relative incompletive

singular		
1	**ⁿgaaj-otoo-mi-ʔ**	'I shall converse'
2	**ⁿgaaj-ɔtɔ-ɗaa-ʔ**	'you sg. will converse'
3	**mɔ gaaj-ɔtɔɔ-ʔ**	'he/she will converse'
plural		
1	**min ⁿgaaj-ɔtɔɔ-ʔ**	'we excl. shall converse'
1+2	**ⁿgaaj-ɔtɔ-ɗɛn-ʔ**	'we incl. shall converse'
2	**ⁿgaaj-ɔtɔ-ɗɔn-ʔ**	'you pl. will converse'
3	**ɓɛ ⁿgaaj-ɔtɔɔ-ʔ**	'they will converse'

In the inverted forms, the long vowel in the verbal marker ***ɔtɔɔ** shortens when it is followed by a verbal affix that constitutes a heavy syllable. The form **-ɔtɔ-** occurs before

the CVC or CVV subject pronouns **-ɗaa** (2sg.), **-ɗɛn** (1+2pl.) and **-ɗɔn** (2pl.). The subject pronouns **-ɗɛn** and **-ɗɔn** are mostly pronounced with a nasalized vowel as **-ɗɛ̃** and **-ɗɔ̃**.

The middle relative incompletive marker **-ɔtɔ-** combines with the long form **-nɔɔ** of the past tense marker. When the verbal marker combines with the past tense, the vowel length occurs on the past tense marker.

M.R.INCOMPL **-ɔtɔ-** with PAST

wakkati mɔ yɔtt-ɔtɔ-nɔɔ maayɔ ⁿgɔɔ ʔɔɔ, mɔ soynorikɛ toon jamaaʔ
time he arrive-R.INCOMPL-PAST river the that he perceive-M.COMPL there crowd
'When he arrived at the river, he saw a crowd in the distance.'

The allomorph of the middle voice incompletive is **-ɔtɔ-** in the example above. Only the length of the past tense marker distinguishes this allomorph from the form of the middle voice completive **-ɔtɔ-** which is not relative. The shortest allomorph **-tɔ-** occurs when all of these conditions are met, the verbal marker **-tɔ-** is preceded by a verbal extension and followed by a morpheme that shortens the final long vowel **-ɔɔ-**.

M.R.INCOMPL **-tɔ-**

yalla wɔn kɔ ɓɛy-ɗ-ɔr-tɔ-ɗɛn-ʔ
so that (there) be-R.COMPL that increase-INCH-CIRC-M.R.INCOMPL-we incl.-FG
'So that we will have something more.'

In the example above the underlying form ***ɔtɔɔ** is shortened to **-tɔ-**. The form loses its first vowel because it follows a verb stem ending in the verbal extension **-ɔr-**. It shortens its long vowel [ɔɔ] because it precedes the inverted subject pronoun **-ɗɛn** which constitutes a heavy syllable. The form of the M.R.INCOMPL is **-ɔtɔɔ** elsewhere.

M.R.INCOMPL **-ɔtɔɔ**; habitual or future

saaya mawka kaa, maⁿdɛ mɔ ɓɔrn-ɔtɔɔ ka
gown large that when he/she wear-M.R.INCOMPL it
'That large gown, when will/does he wear it?'

The underlying form of the middle voice relative completive conjugational suffix is ***ɔtɔɔ**. The allomorphy of the middle relative incompletive conjugational suffix is summarized below.

*ɔtɔɔ > -tɔɔ	/ EXT __	vowel deletion after -VC- extension
*ɔtɔɔ > -ɔtɔ-	/ __ M	vowel shortening before clitics that constitute a heavy syllable, so before **-nɔɔ** 'PAST' **-ɗaa** SPro 'you sg.', **-ɗɔn** SPro 'you pl.' and **-ɗɛn** SPro 'we incl.'
*ɔtɔɔ > -tɔ-	/EXT __ M	vowel deletion after -VC- extension and vowel shortening before clitics that constitute a heavy syllable, so before **-nɔɔ** 'PAST' **-ɗaa** SPro 'you sg', and **-ɗɔn** SPro 'you pl.', and **-ɗɛn** SPro 'we incl.'
*ɔtɔɔ > -otoo-	/ __ **mi**	ATR assimilation before clitic **-mi** SPro 'I'
*ɔtɔɔ > -too-	/ EXT __ **mi**	vowel deletions after -VC- extension and ATR assimilation before clitic **mi** SPro 'I'
*ɔtɔɔ > -ɔtɔɔ	/ elsewhere	

The verbal marker for the passive voice relative incompletive (P.R.INCOMPL) has the allomorphs **-ɛtɛɛ**, **-etee-**, **-ɛtɛ-**, **-tɛɛ**, **-tee-** and **-tɛ**. Like all relative forms, the passive incompletive marker is characterized by final glottality. The contexts conditioning these forms are identical to those causing the forms for the middle voice relative incompletive. The first vowel of the conjugational suffix ***ɛtɛɛ** is deleted after a verb stem ending in a verbal extension with a -VC- shape.

P.R.INCOMPL -tɛɛ; future, habitual

ʔaddu mɔ nodd-ir-tɛɛ-ʔ
Abdu he call-CIRC-P.R.INCOMPL-FG
'Abdu he will be called.'

ley hitaa^{n}dɛ, nii gɔllɛ fecc-ir-tɛɛ ley leydi maasina
in year thus work divide-CIRC-P.R.INCOMPL in land Maasina
'This is how the work is divided over the year in Maasina.'

Allomorphs with [+ATR] vowels occur before the inverted 1st person subject pronoun **-mi**, the only verbal suffix which contains a [+ATR] vowel. The example is given together with the whole paradigm of the passive voice relative incompletive with he subject pronouns. All relative conjugations are characterized by inversion of certain pronouns.

SV and VS order in the relative incompletive

singular		
1	**^{m}biy-etee-mi-ʔ**	'I will be called'
2	**^{m}biy-ɛtɛ-ɗaa-ʔ**	'you will be called'
3	**mɔ wiy-ɛtɛɛ-ʔ**	'he/she will be called'
plural		
1	**min ^{m}biy-ɛtɛɛ-ʔ**	'we excl. will be called'
1+2	**^{m}biy-ɛtɛ-ɗɛn-ʔ**	'we incl. will be called'
2	**^{m}biy-ɛtɛ-ɗɔn-ʔ**	'you pl. will be called'
3	**ɓɛ ^{m}biy-ɛtɛɛ-ʔ**	'they will be called'

The shortening of the long vowel occurs before the inverted subject pronouns that constitute a heavy syllable **-ɗaa** (2sg.), **-ɗɔn** (2pl.) and **-ɗɛn** (1+2). The vowel-nasal sequence at the end of the word is often pronounced as a nasalized vowel.

The long form of the past tense marker **-nɔɔ** combines with the passive relative incompletive marker **-ɛtɛ**, that is shortened when it precedes a morpheme that constitutes a heavy syllable.

P.R.INCOMPL with PAST **-ɛtɛ-nɔɔ**

suka ʔɔɔ ʔana lɔɔt-ɛtɛ-nɔɔ-ʔ
child that LOC wash-P.R.INCOMPL-PAST-FG
'That child was being washed.'

The occurrence of the locative with a relative incompletive is not frequent. The locative here indicates that the action or process expressed by the verb took place over a span of time, i.e. the washing of the child lasted for some time. The following example shows that the passive relative incompletive marker and the past tense marker are both short when they are followed by the inverted subject pronoun **-ɗaa** 'you sg.' that constitutes a heavy syllable.

P.R.INCOMPL with PAST and inverted SPro **-ɗaa** 'you sg.'

hanⁿdɛ kɔkk-ɛtɛ-nɔ-ɗaa pooli ɗi-ʔ
today give-P.R.INCOMPL-PAST-you birds the-FG
'It's today that the birds would have been given to you.'

The form of the passive voice relative incompletive is **-tɛ-** when several conditions (a -VC-extension and a heavy syllable affix) shortening the conjugational suffix occur at the same time.

hɔnɔ ⁿjammir-tɛ-ɗɔn
how call family name-P.R.INCOMPL-you pl.
'What is your family name?

The conjugational suffix of the relative passive incompletive is **-ɛtɛɛ** elsewhere, this is also its underlying form.

P.R.INCOMPL **-ɛtɛɛ**; habitual, future

sɛɛɗa tew ɲaam-ɛtɛɛ-ʔ
little meat eat-P.R.INCOMPL-FG
'Meat is only sparingly eaten'.

hɔtɔ ɓɛ taw-ɛtɛɛ wakkati ⁿduŋⁿgu ?
where they find-P.R.INCOMPL time rainy season
'Where are they to be found in the rainy season?'

5.4.7 COMPLETIVE

The completive marker (COMPL) has the form **-ii**. This morpheme occurs in the last heavy syllable of the verb form. It is therefore always stressed.

COMPL **-ii**

ɓɛ ⁿjeew-t-ii sannɛ
they be lonely-REV-COMPL very
'They have enjoyed themselves (talking) very much.'

The completive marker is not shortened when other verbal suffixes are attached to the verbal form. It is only the past tense marker that can be attached to a verb form with the completive conjugational suffix **-ii**.

COMPL **-ii** with PAST **-nɔ**

ʔɔ hadʼ-ii-nɔ mɔ ŋatɛɛdɛ-ʔ
he prevent-COMPL-PAST him/her to be bitten-FG
'He had prevented him from being bitten.'

It is the short form **-nɔ** of the past tense marker that combines with the completive marker **-ii**.

The completive marker for the middle voice (M.COMPL) has several suppletive forms: **-ikɛ**, **-ɛkɛ** and **-iima**. These forms can be found in the idiolect of the same speaker. The form **-iima** is more dominant in Maasina. The form **-ikɛ** is more dominant in Haayre, where occasionally the variant **-ɛkɛ** is also used.

M.COMPL **-iima, -ikɛ, -ɛkɛ**

speaker from Jenne (Jenneeri):
naaⁿgɛ lel-iima
sun lie-M.COMPL
'The sun has gone down.'

s-a ɓett-ikɛ kamuraga, ʔa yɔtt-ɔtɔ sɛɛnɔsa
if-you pass-M.COMPL Kamuraga, you arrive-M.INCOMPL Seenosa
'If you have passed Kamuraga you will arrive at Seenosa.'

speaker from Duwansa (Haayre):
ʔɔ jaab-ikɛ baab-iikɔ
he answer-M-COMPL father-his
'He has answered his father.'

ʔɔ sal-ɛkɛ yaa-dɛ-ʔ
he answer-M.COMPL go-INF-FG
'He has refused to go.'

The above examples do not indicate the areal distribution of these variants, they only indicate the fact that the same speaker can use more than one variant. In the centre of Maasina the forms **-ikɛ** and **-iima** were both encountered. Perhaps there is a difference in meaning between the forms which I have not yet discovered.

In combination with the long form of the past tense marker **-nɔɔ**, the middle voice completive marker breaks up into two parts.

M.COMPL **-i..ma**, **-i..kɛ** with PAST **-nɔɔ**

speaker from Sah (Gimballa):
mi ɗaan-i-nɔɔ-ma
I sleep-M.COMPL-PAST-M.COMPL
'I had slept.'

speaker from Soofara (Kunaari):
ʔa til-i-nɔɔ-kɛ winⁿdudɛ-ʔ
you finish-M.COMPL-PAST-M.COMPL write-INF-FG
'You had finished writing.'

speaker from Duwansa (Haayre):
mi til-ɛkɛ-nɔ ʔɛ huttudɛ lɛlla-ʔ
I finish-M.COMPL-PAST with skin-INF antelope-FG
'I had finished skinning the antelope.'

A speaker from Sabara, near Jonnyoori in the centre of Maasina, used the two forms **tilinɔɔkɛ** 'had finished' and **ɗaaninɔɔma** 'had slept'. Perhaps the variation is also due to the semantics of the verb stem with which this verbal marker combines. The form **tilɛkɛnɔ** 'had finished', pronounced by a speaker coming from Duwansa, shows that the vowel length of the past tense marker is determined by its position. The past tense marker is short when it follows the middle completive marker, it is long when it behaves as an infix.

When the past tense marker combines with the middle completive marker, the first part of the morpheme **-iima**, its vowel **-ii-**, is shortened before the heavy syllable containing the past tense marker **-nɔɔ**. The hypothesis is that the morphemes **kɛ** and **ma** are later additions to the conjugation of the middle completive, they are added to disambiguate the middle voice forms of the completive conjugation from those of the active verbs which are **-ii-** in neutral sentences and **-i-** when focus precedes the verb.

The completive conjugational suffix for passive voice verbs (P.COMPL) is **-aama**.

P.COMPL **-aama**

ʔɔ rim-aama sɔɔfara
he bear-P.COMPL Soofara
'He is born in Soofara.'

mi yɛɛw-aama ⁿgenⁿdi ʔam
I be alone-P.COMPL village my
'I am homesick for my village.'

ʔɔ ɓil-aama sannɛ
he make angry-P.COMPL very
'He is very angry.'

The passive completive combines with the long form of the past tense marker **-nɔɔ**. The first part of the passive completive marker **-aa-** is shortened before the morpheme **-nɔɔ** which constitutes a heavy syllable. The second part of the passive completive marker **-ma** follows the past tense marker **-nɔɔ**.

P.COMPL **-a..ma** with PAST **-nɔɔ-**

fotiirɛ lawɟ-a-nɔɔ-ma
pot wash-P.COMPL-PAST-P.COMPL
'The pot had been washed.

The behaviour of the past tense marker **-nɔɔ** as an infix is an indication that the conjugational suffix **-aama** is historically polymorphemic.

Thus, the underlying forms of the completive markers are ***ii** for the active voice verbs, ***iima** or ***ikɛ** for the middle voice verbs, and ***aama** for the passive voice verbs.

5.4.8 RELATIVE COMPLETIVE

The allomorphs of the relative completive conjugational suffix for the active voice (R.COMPL) are **-i**, **-u-** and Ø (zero). Relative verb forms are marked by final glottality. The relative completive markers indicate that the event or process expressed by the verb is completed. It also puts focus on the information preceding this verb form. There may be an explicit focused constituent at the beginning of the sentence, either on the subject or on the argument preceding the subject. The focus may also be placed on other information preceding the verb form as is the case when it is used in a narrative sequence (as in the following sequence).

R.COMPL **-i**; narrative

ɓɛ ⁿjeh-i fa ɓɛ ⁿjott-ii maayɔ maŋⁿgɔ
they go-R.COMPL until they arrive-M.R.COMPL river big
ⁿgɔ gɛɛnɛ pil-ii, ɓɛ ⁿdeg-i, ɓɛ ⁿjar-i ⁿdiyam
that grass surround-M.R.COMPL they descend-R.COMPL they drink-R.COMPL water
'They went until they arrived at a big river surrounded by grass, they went down and they drank water.'

In combination with the locative marker, the relative completive forms what is called the stative. This stative can only be formed with inchoative verbs. Inchoative verbs express the change from one state to another, they mark the beginning of a new state. In the stative it is the relative completive which indicates that this change of state is completed, it is the locative marker which indicates that the result of the completion of this change of state or of the completion of the beginning of this state occurs at the time of speech.

R.COMPL **-i** with LOC; stative

ʔɔmɔ fuuy-i-ʔ
he+LOC be lazy-R.COMPL-FG
'He is lazy.'

The allomorph **-u-** and Ø (zero) occur when the relative completive marker is followed by other verbal suffixes. The relative completive is used in the following example, because sentence initial question words are focused constituents.

R.COMPL **-u-** with inversion

kɔ kawr-u-ɗaa
what meet-R.COMPL-you
'What did you meet?'

The relative conjugations are characterized by inversion for the subject pronouns **-mi** 'I', **-ɗaa** 'you (sg.)', **-ɗɛn** 'we (incl.)', and **-ɗɔn** 'you (pl.'). This results in the following verbal complexes, exemplified with the verb stem **hɔkk-** 'give'. Deletion of the vowel **-u-** is not possible after a verb stem ending in two consonants, since this would lead to ill-formed syllable structures.

SV and VS order in the relative completive

singular		
1	**kokk-u-mi-ʔ**	'I have given'
2	**kokk-u-ɗaa-ʔ**	'you have given'
3	**mɔ hokk-i-ʔ**	'he/she has given'
plural		
1	**min kokk-i-ʔ**	'we (excl.) have given'
1+2	**kokk-u-ɗɛn-ʔ**	'we (incl.) have given'
2	**kokk-u-ɗɔn-ʔ**	'you have given'
3	**ɓɛ kokk-i-ʔ**	'they have given'

The allomorph of the relative completive marker can only be Ø (zero) when the succession of the verb stem and further verbal suffixes does not create ill-formed syllable structures.

R.COMPL Ø (zero) with inversion

kɔ kaal-ɗaa fuʔ, ʔɔ pɛnɛ-ʔ
what speak-R.COMPL-you all, it lies-FG
'All that you have said is a lie.'

The vowel **-u-** is omitted when the verb stem is enlarged with a verbal extension.

R.COMPL Ø (zero) after extension

kɔ ʔan^{n}d-ir-moo-mi lebbi tati
it know-CIRC-R.COMPL-him-I months three
'It's now three months since I have known him.'

The alternation between **-u-** and Ø (zero) is optional when the verb stem is not expanded with a verbal extension.

R.COMPL **-u-** or Ø (zero)

kɔ ^{n}jiɗ-u-mi = **kɔ ^{n}jim-mi**
what want-R.COMPL-I (SPro) what want-R.COMPL-I (SPro)
'What I want...'

The relative completive **-u-** combines with the long form **-nɔɔ** of the past tense marker when the deletion of this vowel would create ill-formed syllables. If these violations would not arise the allomorph of the relative completive is Ø (zero).

R.COMPL **-u-** with PAST **-nɔɔ**

buba mɔ winⁿd-u-nɔɔ ʔe mum leɛtɛrɛ
Buba$_1$ he$_2$ write-R.COMPL-PAST to him$_1$ letter
'It's to Buba that he had written a letter.'

The past tense marker **-noo-** has assimilated to the [+ATR] vowel [**i**] of the subject pronominal affix **-mi**.

R.COMPL **-u-** with PAST **-noo-**

ʔattey ⁿgadd-u-noo-mi-ʔ
tea bring-R.COMPL-PAST-I (SPro)
'It's tea that I had brought.

The long obstruent [**dd**] cannot occur syllable finally, therefore the vowel **-u-** forms the allomorph of the R.COMPL.

The allomorphs of the relative completive marker are summarized below.

***i > -i**	/ elsewhere	generally
***i > -u-**	/ __M	before another affix
-u-> Ø	/ EXT__M	before another affix,
		provided that no ill-formed syllable structures occur
		1. obligatory after -VC- extension
		2. optionally after simple verb stem

The relative completive marker for middle voice (M.R.COMPL) has the allomorphs **-ii**, and **-i-**. The first examples illustrate the allomorph **-ii**.

M.R.COMPL **-ii**

hɔtɔ mɔ joodʼ-ii ?
where he sit-M.R.COMPL
'Where is he seated?'

gɔrkɔ na ɓoor-n-ii saaya-ʔ
the man LOC dress-CAUS-M.R.COMPL gown
'The man is dressed in a gown.'

The allomorph **-i-** occurs when the M.R.COMPL is followed by verbal suffixes which constitute a heavy syllable such as some of the subject pronominal affixes .

SV and VS order in the relative completive

singular			
1	**ⁿgaaj-ii-mi**		'I have chatted, conversed'
2	**ⁿgaaj-i-ɗaa**		'you have chatted'
3	**mɔ gaaj-ii**		'he/she has chatted'
plural			
1	**min ⁿgaaj-ii**		'we (excl.) have chatted'
1+2	**ⁿgaaj-i-ɗɛn**	[**ⁿgaaj-i-ɗɛ̃**]	'we (incl.) have chatted'
2	**ⁿgaaj-i-ɗɔn**	[**ⁿgaaj-i-ɗɔ̃**]	'you have chatted'
3	**ɓɛ ⁿgaaj-ii**		'they have chatted'

The middle relative completive marker **-ii-** is not shortened before the subject pronominal affix **-mi** 'I' because it constitutes a light syllable (see section 4.2.2).

The long form **-nɔɔ** of the past tense marker combines with the middle relative completive marker **-i-** because the past tense marker **-nɔɔ** constitutes a heavy syllable.

M.R.COMPL **-i** with PAST **-nɔɔ**

ʔɔmɔ jooɗ-i-nɔɔ hakkuⁿdɛ mɛn
he+LOC sit-M.R.COMPL-PAST between us
'He sat among us.'

The allomorphs of the relative completive markers for passive voice verbs are **-aa**, **-a-**, and **-ɛ-**. The first example shows the P.R.COMPL suffix **-aa** with the locative describing an ongoing state. The P.R.COMPL occurs in the second example because the question word is in focus.

P.R.COMPL **-aa-**

ʔɔmɔ ʔanⁿd-aa-ʔ
he+LOC know-P.R.COMPL-FG
'He is known.'

maⁿdɛ suka ʔɔɔ lɔɔt-aa
when child that wash-P.R.COMPL
'When has that child been washed?'

Like all relative conjugations, the passive relative incompletive markers are characterized by the inversion of certain subject pronouns.

SV and VS order in the relative completive

singular			
1	**ᵐbiy-aa-mi**		'I have been called'
2	**ᵐbiy-ɛ-ɗaa**		'you have been called'
3	**mɔ wiy-aa**		'he/she has been called'
plural			
1	**min ᵐbiy-aa**		'we (excl.) have been called'
1+2	**ᵐbiy-a-ɗɛn**	[**ᵐbiy-a-ɗɛ̃**]	'we (incl.) have been called'
2	**ᵐbiy-ɛ-ɗɔn**	[**ᵐbiy-ɛ-ɗɔ̃**]	'you have been called'
3	**min ᵐbiy-aa**		'they have been called'

The allomorph -ɛ occurs when the second person **-ɗaa** (sg.) or **-ɗɔn** (pl.) follows the verb form as an inverted subject. The vowel change from [**a**] to [**ɛ**] in this context is difficult to explain. The vowel shortening of the conjugational marker occurs before verbal affixes that constitute a heavy syllable, i.e. before the subject pronouns **-ɗaa**, **-ɗɛn** and **-ɗɔn** but not before the subject pronoun **-mi** 'I' which forms a light syllable. The P.R.COMPL verbal marker ***aa** is shortened before the long form of the past tense marker **-nɔɔ** that constitutes a heavy syllable.

P.R.COMPL **-a** with PAST **-nɔɔ**

kayrɛ **lawɟ-a-nɔɔ-ʔ**
it (NDE class) wash-P.R.COMPL-PAST-FG
'It is the one (cloth) that had been washed.'

ⁿdɛ nafanⁿdɛ jaŋⁿg-an-a-nɔɔ **ɓataaki ʔɔɔ ⁿdɛɛ, dar-ii**
when Nafande read-DAT-P.R.COMPL-PAST letter that when stop-M.R.COMPL
ʔɔmɔ miil-a kɔ jaab-ɔtɔɔ **miɲ-um ʔɔɔ-ʔ**
he+LOC think-SUB what answer-M.R.INCOMPL younger-his that-FG
'When Nafande had been read this letter (to), when it stopped he thought about what to answer this younger sibling of his.' (Tioulenta 1980b:9)

From the story about Nafannde (Tioulenta 1986b:9), it is clear that Nafannde cannot read because he was looking for a **jaŋⁿgɔnɔɔwɔ** 'somebody that reads for people who can't read or write'. So in this sentence the subject Nafannde is the benefactive for whom the letter is read and Nafannde is the subject of the passive verb **jaŋⁿgɛɛdɛ** 'to be read (to)'.

The allomorphy of the passive relative completive marker is summarized below.

***aa** > **-a-** / __M	when the verb form is followed by a verbal affix that constitutes a heavy syllable
***aa** > **-ɛ-** / __M	when the verb form is followed by a 2nd person subject affix **-ɗaa** or **-ɗɔn**.
***aa** > **-aa**	elsewhere

Thus the underlying forms of the relative completive markers are ***i** for the active voice verbs, ***ii** for the middle voice verbs, and ***aa** for the passive voice verbs.

5.4.9 INDEFINITE INCOMPLETIVE

The indefinite incompletive (from here on indefinite) occurs very rarely in Fulfulde. This is also the case in Maasina. McIntosh (1984:122) calls this conjugational suffix in Kaceccereere the vague incompletive. The indefinite (INDEF) expresses an uncertainty about the actual accomplishment of the action or process of the verb. This is why the term vague incompletive has been changed to the indefinite. In the data, only two examples were found. The first example of the indefinite was given as a translation of the example of McIntosh (1984:131). In Maasina the adverbial expression **ʔana miilɛɛ** 'lit: it is thought' indicating possibility has to precede this verb form.

INDEF **-uma**

Kaceccereere	Maasina
ⁿgel yoor-uma ɗɔɔ	**ʔana miil-ɛɛ ⁿgel yoor-uma ɗɔɔ**
it dry-INDEF here	it think-P.SUB it dry-INDEF here
'It may dry here'	'Possibly (it is thought that) it will dry here.'

A second example, with the form of the middle indefinite, was found in the story of Nafannde (Tioulenta 1980a:14).

M.INDEF **-ɔɔma**

hɛddɔ kɛlɛntɛɛjɛ ʔana kerk-it-a dow makkɔ,
then birds LOC chatter-REV-SUB on him
ŋɔŋ-aa sakɔ ɗaan-ɔɔma
be sleepy-NEG even less sleep-M.INDEF (Tioulenta 1980a:14)
'Then (short legs, noisy, grey, spotted, small) birds were chattering above him, they weren't sleepy, even less likely that they would sleep (and shut up).'

The uncertainty of an event can be expressed by the modal adverb **maa** 'probably' as in the following sentence.

adverb **maa** 'probably'

maa mi war ka...
probably I come however
'I should probably come, but...'

The above sentence indicates that the speaker cannot come, but also that he cannot say that he won't come (this could be said, for example to people whom one can't refuse anything because of a **yaagɛ** 'respect, restraint etc.' in an avoidance relationship). The similarity in form and meaning between the adverb **maa** 'probably' and the indefinite marker **-ma**

suggests that the two forms are related. Such a relation between this adverb **maa** and the verbal marker **-ma** is an indication that historically some verbal markers can be derived from adverbs in Fulfulde.

The indefinite is also used in a few fixed expressions such as the modal predicate **ɓɔɔyma** 'probably during be a long time'. The verb stem **ɓɔɔy-** 'to last, be long' combines here with the indefinite because you can't be really sure what will happen in a long time.

ɓɔɔy-ma **ɗum** **waɗ-aali**
take time-INDEF it do-N.COMPL
'It will be long before it will be realized.'

The adverbs of time **jɛmma**, **jamma** 'night' and **ɲalɔɔma** 'daytime' are probably also derived from indefinite verb forms. The examples **ɓɔɔyma** 'probably during a long time' and **yooruma** 'probably will dry' give no clear insight into the distribution of the allomorphs of the indefinite **-ma** and **-uma**. The active voice marker **-u-** can be deleted after a CVVC morpheme ending in a sonorant, but this deletion is optional, perhaps related to frequency of the word in question.

The indefinite is such a rare conjugation that it is difficult to explain the fact that no forms of the indefinite with the past tense marker are found: it may be due to its infrequent use in general or a possible semantic incompatibility. The formation of the indefinite shows many similarities with the other non-indicative conjugations. This is probably the reason why its combination with the past tense marker is not attested.

5.4.10 NEGATIVE CONJUGATIONAL SUFFIXES

There are seven different negation markers. These negation forms differ for the three voices (active, middle, and passive) and they differ for the two aspects (completive and incompletive).

(general) negative (N)	**-aa**
negative completive (N.COMPL)	**-aali**, **-aay**
negative incompletive (N.INCOMPL)	**-ataa**
negative middle completive (N.M.COMPL)	**-aaki**
negative middle incompletive (N.M.INCOMPL)	**-ataakɔ**
negative passive completive (N.P.COMPL)	**-aaka**
negative passive incompletive (N.P.INCOMPL)	**-ataakɛ**

The active voice verbs can thus combine with a completive and with an incompletive negation marker. But besides these two, some active voice verbs can combine with a third negation marker **-aa** that is not marked for incompletive or completive. The meaning of the negative marker **-aa** is the negation of a general statement or state. It combines especially with verbs that occur in the stative. This generic negation marker (N) **-aa** always occurs in the last heavy syllable of the verb form and therefore it is always stressed (cf. Mohamadou 1989).

NEG **-aa**

mi ʔanⁿd-àa
I know-NEG
'I don't know.'

mɔ hɛɛw-àa sɛmᵐbɛ
he be many-NEG strength
'He does not have much strength.'

The form **-ataa** is the negation marker for incompletive verb forms of active voice verbs (N.INCOMPL).

N.INCOMPL **-ataa**

ɓɛ kɔɗ-ataa ley wurɔ
they stay-N.INCOMPL in the village
'They won't stay in the village.'

The negation marker for completive verb forms of active voice verbs (N.COMPL) can have the form **-aali** or **-aay**. There is much variation, the form can depend on the speaker, the speech style, and possibly on the geographical origin of the speaker. The form **-aali** seems to be dominant in the centre of Maasina.

N.COMPL **-aali, -aay**

speaker from Toggere Kumba (Maasina centre)
mɔ war-aali
he come-N.COMPL
'He hasn't come.'

speaker from Sah (Gimballa)
mɔ yiy-aay kaaɗɔ
he see-N.COMPL Dogon
'He hasn't seen the Dogon.'

speaker from Soofara (Kunaari)
ʔɔ fiy-aay suka ʔɔɔ
he beat-N.COMPL child the
'He didn't beat the child.'

speaker from Duwansa (Haayre)
mi yih-aay fay gɔɔtɔ
I see-N.COMPL even one person
'I haven't seen anybody.'

The negation marker for middle voice verbs in the incompletive conjugation (N.M.INCOMPL) can have the form **-ataakɔ** or **-taakɔ**. The form **-ataakɔ** follows the verb form directly, as in the example below.

N.M.INCOMPL **-ataakɔ**

ɗam ⁿdiyam yar-ataakɔ
this water drink-N.M.INCOMPL
'This water can't be drunk.'

The initial vowel of this verbal marker is deleted when it follows a verb stem which is enlarged with a verbal extension, as in the following example.

N.M.INCOMPL **-taakɔ**

huuⁿdɛ fuʔ dill-in-taakɔ kɔ wan-aa ʔanⁿdal makkɔ
thing all move-CAUS-N.M.INCOMPL that be-NEG knowledge his
'Nothing can make a move without his knowledge.'

The negation marker for middle voice verbs in the completive conjugation (N.M.COMPL) has the form **-aaki**.

N.M.COMPL **-aaki**

ʔafɔ taŋŋ-aaki waŋŋ-aaki
Afo (firstborn) be ugly-INT-N.M.COMPL hate-INT-N.M.COMPL
'Afo is not ugly, and cannot be hated (so he's very adorable).' (Seydou 1991:246)

The two allomorphs of the negation marker for passive voice verbs in the completive conjugation (N.P.INCOMPL) are **-ataakɛ** and **-taakɛ**.

N.P.INCOMPL **-ataakɛ**

mɔ wiʔ-ataakɛ buba-ʔ
he say-N.P.INCOMPL Buba
'He isn't called Buba.'

ʔabada nan-t-ataakɛ
never hear-REV-N.P.INCOMPL
'Never will it be heard again.'
(Seydou 1991:270)

The form **-taakɛ** is not attested but it is expected to follow verb stems with a -VC-extension. The negation marker for passive voice verbs in the completive conjugation (N.P.COMPL) is **-aaka**.

N.P.COMPL **-aaka**

ɓɛ kill-aaka kɔ woni ley wurɔ
they be interested in-N.P.COMPL what be-R.COMPL in the village
'They are not interested in what is in the village.'

The form of the past tense marker in combination with a negation marker can be either long or short. The past tense marker is short when it follows a negative conjugational suffix, e.g. N.COMPL + PAST: **-aalinɔ**. The past tense marker is long when it behaves as an infix, e.g. N.COMPL + PAST: **-anooli** (see section 5.5.1.2).

NEG with PAST

mɔ yiɗ-aa-nɔ piy-ɛ-ɗaa
he want-NEG-PAST beat-P.R.COMPL-you sg.
'He didn't want you to be beaten.'

N.INCOMPL with PAST

ʔabada min ʔanⁿd-ataa-nɔ
ever we (excl) know-N.INCOMPL-PAST
'We would never have known.'

The variation of the negative completive marker is also present in the combination with the past tense marker. Both forms **-aay** and **-aali** can be followed by the short form past tense marker **-nɔ**. The long form of the past tense marker can also occur as an infix in the verbal marker **-aali**. The vowel of the past tense marker will assimilate to the [+ATR] vowel [i] resulting in the form **-anooli**. The variation could be geographically distributed, but several speakers use all forms.

N.COMPL with PAST

speaker from Sah (Gimballa)
ʔɔ hɛɓ-aay-nɔ
he/she obtain-N.COMPL-PAST
'She hadn't got it'.

speaker from Sabare (Maasina centre)
ʔɔɔ war-aali-nɔ
he/she-DEM come-N.COMPL-PAST
'That one hadn't come.'

speaker from Toggere Kumba (Maasina centre)
mi winⁿd-a-noo-li ɓataaki
I write-N.COMPL-PAST-N.COMPL letter
'I hadn't written a letter.'

The negative middle completive marker is split up into two morphemes when it combines with the past tense marker.

N.M.INCOMPL *-**ata..kɔ** with PAST -**nɔɔ**

ɗam ⁿdiyam yar-atɔ-nɔɔ-kɔ
that water drink-N.M.INCOMPL-PAST-N.M.INCOMPL
'That water was not drinkable.'

The underlying shortened vowel [**a**] preceding the past tense marker -**nɔɔ**- has undergone assimilation to become [ɔ] because it occurs in a non-stressed light syllable. This assimilation does not take place in the example where the negation of the middle completive combines with the past tense marker.

N.M.COMPL *-**a..ki** with PAST -**nɔɔ**

mi jaab-a-noo-ki mɔ-ʔ
I answer-N.M.COMPL-PAST-N.M.COMPL him
'I had not answered him.'

In the combination of the negative passive incompletive marker all the unstressed short vowels undergo assimilation again. The domain in which this vowel assimilation rule appears varies.

N.P.INCOMPL ***ata..kɛ** with PAST -**nɔɔ**

mɔ wiʔ-ɔtɔ-nɔɔ-kɛ buba-ʔ
he say-N.P.INCOMPL-PAST-N.P.INCOMPL Buba-FG
'He will not be called Buba.'

The first two short vowels [**a**] of the underlying form of the negative passive incompletive marker combined with the past tense marker ***-atanɔɔkɛ** > **-ɔtɔnɔɔkɛ** have been assimilated to the vowel [ɔɔ] of the past tense marker, because they occur in a non-stressed light syllable.

N.P.COMPL ***a..ka** with PAST -**nɔɔ**

mɔ haɓɓ-a-nɔɔ-ka
he/she tie-N.P.COMPL-PAST-N.P.COMPL
'He had not been tied.'

The rule accounting for the assimilation of a short vowel in an unstressed syllable is optional, it does not occur in the above example, but it does occur in the following example with the same verbal markers.

N.P.COMPL ***a..ka** with PAST **-nɔɔ**

ɓɛ	**kill-it-ɔ-nɔɔ-ka**	**kɔ**	**woni**	**ley**	**wurɔ**
they	interest-REV-N.P.COMPL-PAST-N.P.COMPL	what	be-R.COMPL	in	village

'They were again not interested in what is in the village.'

The vowel length of the negation marker **-aa** is reduced when the past tense marker **-nɔɔ-** is an infix. The only long vowel that can occur after the verb stem is found in the past tense marker in the penultimate syllable, preceding the second part of the negative passive completive marker.

5.5 FURTHER ANALYSIS OF THE CONJUGATIONAL SUFFIXES IN MAASINA

The hypothesis is that the conjugational suffixes are fused forms combining several morphemes in their underlying structure. This assumption is based on the fact that the same semantic properties recur in several conjugational categories and in different combinations. The semantic categories expressed by the verbal conjugational suffixes are listed below.

TENSE:	present:	point of reference is the moment of speaking
	past:	reference point is before the moment of speaking
VOICE:	active:	subject enacts V
	middle:	V affects the subject
	passive:	subject undergoes V
ASPECT:	completive:	event described in the clause is completed
	incompletive:	event described has not been completed
DISCOURSE:	general (non-relative):	utterance is not dependent on something else
	focalizing (relative):	indicating focus preceding V
	focus (verb focus):	contrastive emphasis on V
POLARITY:	affirmative:	event described is affirmed
	negative:	event described is denied
MOOD:	indicative:	event described has happened or will happen
	non-indicative:	someone wants the event described to happen
	imperative	command: wanted
	exhortative	wish: wanted and desired
	subjunctive	wanted and expected
	indefinite	wanted and unexpected

The forms that result from a combination of these semantic parameters are discussed in the previous sections 5.4.1-5.4.10. When the allomorphy of these portmanteau morphemes and the marking of tense (by the presence or absence of the morpheme **-nɔ**) is left aside, the following conjugational suffixes are left for further analysis.

	Active	Middle	Passive
Imperative singular	***u**	***a**	
Imperative plural	***εε**	***εε**	
Exhortative	***u**	***ɔ**	
Verb Focus	***u**	***i**	***a**
Subjunctive	***a-ʔ**	***ɔɔ-ʔ**	***εε-ʔ**
Incompletive	***an**	***ɔtɔ**	***εtε**
Relative Incompletive	***ata-ʔ**	***ɔtɔɔ-ʔ**	***εtεε-ʔ**
Indefinite	***uma**	***ɔɔma**	(—)
Negative Incompletive	***ataa**	***ataakɔ**	***ataakε**
Completive	***ii**	***ikε, *iima**	***aama**
Relative Completive	***i-ʔ**	***ii-ʔ**	***aa-ʔ**
Negative Completive	***aali, *aay**	***aaki**	***aaka**
Negative	***aa**		

When the above schema is compared with the conjugational suffixes occurring in Kaceccereere (McIntosh 1984:156) several differences appear. The continuative imperative is not present in Maasina. If the continuation of an action is demanded, the imperative of the verb **hεddaadε** 'rest, remain' is used in Maasina. The command to continue doing something is expressed in the following way:

hεdd-a	**yin-aadε-ʔ**	**kεdd-εε**	**jɔɔd'-aadε-ʔ**
remain-M.IMPsg	swim-INF-FG	remain-IMPpl	sit-INF-FG
'Keep swimming.'		'Remain seated.'	

The absence of the progressive and stative inflectional paradigms described by McIntosh is explained by the fact that they are not treated here as separate conjugations. Another difference is the fact that the negative conjugational suffix ***aa** (NEG) is not described as a separate conjugational suffix by McIntosh.

Following the principle "one form, one meaning", in the following sections an effort will be made to discover the morphological exponents which the different conjugational suffixes are composed of.

5.5.1 TENSE

The possible semantic notions of tense (see Reichenbach 1980, Comrie 1985) which are expressed in Fulfulde are the following:

Semantic distinctions of tense:

present: point of reference is moment of speaking
past: reference point is before moment of speaking

The present tense is the unmarked tense of the verb forms. The past tense is marked by the morpheme **nɔ**.

5.5.1.1 PRESENT

The present tense indicates that the point of reference of an utterance is the moment of speaking. The present tense is the unmarked tense in Fulfulde, it has no specific morphological exponent. The tense of the verb form must not be confused with the point in time when the action or process expressed in the verb (the event) takes place. The time of the event depends on the moment in time described by other temporal indicators present in the utterance, such as adverbs of time, or the context. In a sentence like **jaŋ^{n}gɔ mi waran** 'tomorrow I will come' something is said about a moment in the future: tomorrow, but the point of reference is still the present. Tomorrow is the future only in relation to the reference point which is the moment of speaking, i.e. the present.

5.5.1.2 PAST TENSE MARKER **nɔ**

The past tense marker changes the point of reference from the moment of speaking to a moment in the past. The past tense marker only combines with indicative verb forms, it does not combine with imperative, exhortative, subjunctive and indefinite verb forms. These conjugations can only refer to a wish (exhortative), a need (imperative), or an expectation (subjunctive, indefinite) that exists at the moment of speaking.

It is remarkable that the past tense marker is not found with the subjunctive conjugations. The subjunctive could be said to describe an indicative mood in combination with the locative when an action in progress is described. The subjunctive is described as an indicative mood because it signals that the event expressed by the verb is wanted in all other contexts. The subjunctive cannot be combined with the past tense marker, neither can other conjugations in a non-indicative mood. An expectation or desire of an event to have happened in the past is expressed by the R.INCOMPL in combination with the past tense marker.

The past tense marker has a special place in the morphology of the verbal conjugational suffixes. It is the only verbal marker with a clear form which has not fused completely with other verbal markers. The past tense marker has been isolated as a separate morpheme previously by several authors although under different names, e.g. preterite marker (Arnott 1970a:216, Sylla 1982:89), anteriority marker (McIntosh 1984:76).

The combination of the past tense marker with other markers often leads to different allomorphs of the verbal conjugational suffixes. The vowel length of the past tense marker is determined by the verbal conjugational suffix with which it combines. Here a summary on the usage and allomorphy of the past tense marker is given. In the following table the underlying forms of the conjugational verbal suffixes are listed, with and without the past tense marker.

		underlying form	with past tense marker		
1	IMPsg	*u	--		
	M.IMPsg	*a	--		
	IMPpl	*ɛɛ	--		
2	EXH	*u	--		
	M.EXH	*ɔ	--		
3	VF	*u	--		
	M.VF	*i	--		
	P.VF	*a	--		
4	SUB	*a-ʔ	--	(R.INCOMPL:	-an-nɔɔ-ʔ)
	M.SUB	*ɔɔ-ʔ	--	(M.R.INCOMPL:	-ɔtɔ-nɔɔ-ʔ)
	P.SUB	*ɛɛ-ʔ	--	(P.R.INCOMPL:	-ɛtɛ-nɔɔ-ʔ)
5	INCOMPL	*an	-an-nɔ		
	M.INCOMPL	*ɔtɔ	-ɔtɔ-nɔ		
	P.INCOMPL	*ɛtɛ	[--]		
6	R.INCOMPL	*ata-ʔ	-an-nɔɔ-ʔ		
	M.R.INCOMPL	*ɔtɔɔ-ʔ	-ɔtɔ-nɔɔ-ʔ		
	P.R.INCOMPL	*ɛtɛɛ-ʔ	-ɛtɛ-nɔɔ-ʔ		
7	N.INCOMPL	*ataa	-ataa-nɔ		
	N.M.INCOMPL	*ataakɔ	-atɔ-nɔɔ-kɔ	(*atanɔɔkɔ)	
	N.P.INCOMPL	*ataakɛ	-ɔtɔ-nɔɔ-kɛ	(*atanɔɔkɛ)	
8	INDEF	*uma	--		
	M.INDEF	*ɔɔma	--		
9	COMPL	*ii	-ii-nɔ		
	M.COMPL	*ikɛ, *iima	-i-nɔɔ-ma, -i-nɔɔ-kɛ, -ɛkɛ-nɔ		
	P.COMPL	*aama	-a-nɔɔ-ma		
10	N.COMPL	*aali, *aay	-aali-nɔ, -aay-nɔ, -a-noo-li		
	N.M.COMPL	*aaki	-a-noo-ki		
	N.P.COMPL	*aaka	-ɔ-nɔɔ-ka, -a-nɔɔ-ka		
11	R.COMPL	*i-ʔ	-u-nɔɔ-ʔ		
	M.R.COMPL	*ii-ʔ	-i-nɔɔ-ʔ		
	P.R.COMPL	*aa-ʔ	-a-nɔɔ-ʔ		
12	NEG	*aa	-aa-nɔ		

The underlying form of the past tense marker ***nɔ*** has a short vowel. The long form **-nɔɔ** of the past tense marker is the result of its merger with an adjacent vowel in the underlying structure of the conjugational suffix.

The past tense marker has a long form when it follows the relative conjugations. At the same time the relative conjugations lose one vocalic time slot when they combine with the past tense marker. The most probable explanation is that the long vowel of the past tense marker **-nɔɔ** results from its merger with the lost vowel of the conjugational suffix. If this is so, the underlying structure of these forms also shows the past tense marker as an infix.

Long vowel -nɔɔ resulting from a merger in relative forms:

	without PAST	with PAST	
R.INCOMPL	*ata	*-at-nɔ-a	> -an-nɔɔ
M.R.INCOMPL	*ɔtɔɔ	*-ɔtɔ-nɔ-ɔ	> -ɔtɔ-nɔɔ
P.R.INCOMPL	*ɛtɛɛ	*-ɛtɛ-nɔ-ɛ	> -ɛtɛ-nɔɔ
R.COMPL	*i	*-nɔ-i	> -u-nɔɔ
M.R.COMPL	*ii	*-i-nɔ-i	> -i-nɔɔ
P.R.COMPL	*aa	*-a-nɔ-a	> -a-nɔɔ

The vowel [u] which appears before the past tense marker in the relative completive is the active voice marker, its distribution shows a lot of similarity with the distribution of epenthetic vowels. The past tense marker has a long form when it behaves as an infix. A long vowel preceding the infix is usually shortened and a short vowel preceding the infix is deleted. It is possible that the past tense marker preceded this vowel and merged with it to form the long vowel [ɔɔ].

	without PAST	with PAST		
M.COMPL	*ikɛ	*(i)-nɔ-ikɛ	> -i-nɔɔ-kɛ	
M.COMPL	*iima	*i-nɔ-ima	> -i-nɔɔ-ma	
P.COMPL	*aama	*a-nɔ-ama	> -a-nɔɔ-ma	
N.COMPL	*aali	*a-nɔ-ali	> -a-noo-li	
N.M.COMPL	*aaki	*a-nɔ-aki	> -a-noo-ki	
N.P.COMPL	*aaka	*a-nɔ-aka	> -a-nɔɔ-ka	> -ɔnɔɔka
N.M.INCOMPL	*ataakɔ	*ata-nɔ-akɔ	> *ata-nɔɔ-kɔ	> -atɔnɔɔkɔ
N.P.INCOMPL	*ataakɛ	*ata-nɔ-akɛ	> *ata-nɔɔ-kɛ	> -ɔtɔnɔɔkɛ

Only the length in the form of the middle completive with the past tense marker -inɔɔkɛ cannot be explained in this way. The vowel length of -nɔɔ- in this conjugational suffix is perhaps caused by paradigmatic levelling. The past tense marker precedes the inverted subject pronoun when inversion occurs, i.e. in the subjunctive and relative conjugations.

PAST with pronominal subject affixes

ɗɛɛ kullɛ kɔkk-an-noo-mi mɔ
these things give-R.INCOMPL-PAST him/her
'It's these things which I gave to him.'

han^{n}dɛ kɔkk-ɛtɛ-nɔ-ɗaa pooli
today give-P.R.INCOMPL-PAST-you birds
'It's today which you would have been given birds.'

ɗɔɔ naŋ^{n}g-u-noo-mi ɗɛ
here catch-R.COMPL-I them
'It's here that I had caught them'

wakkati hɔmɔ ⁿjog-i-nɔ-ɗaa
time which have-M.R.COMPL-PAST-you
'What time did you say it was?'

ɗɛɛ kullɛ kɔkk-a-noo-mi
these things give-P.R.COMPL-PAST
'It's these things that I had been given.'

kɛɛɲɛ naŋⁿg-ɛ-nɔ-ɗaa
yesterday catch-P.R.COMPL-PAST-you
'It's yesterday that you had been caught.'

The vowel of the conjugational suffix is shortened when long, or deleted when short in inverted verb forms. The time slot of this lost vowel is attached to the past tense marker, resulting in a long form **-nɔɔ-**.

R.INCOMPL: *at-a	**kɔkk-an-noo-mi**	< ***kɔkk-at-nɔ-a-mi**
	give-R.INCOMPL-PAST	give-R.INCOMPL-PAST-R.INCOMPL-I
R.COMPL: *i	**naŋⁿg-u-noo-mi**	< ***naŋⁿg-nɔ-i-mi**
	catch-R.COMPL-I	catch-PAST-R.COMPL-I
P.R.COMPL: *a-a	**kɔkk-a-noo-mi**	< ***kɔkk-a-nɔ-a-mi**
	give-P.R.COMPL-PAST	give-P.R.COMPL-PAST-P.R.COMPL-I

In the last example the active verb marker **-u-** intervenes between the stem and the past tense marker to prevent a sequence of three consonants.

The inverted verb forms that are followed by the subject **-ɗaa** 'you (sg.)' are thought to follow the same derivation as the verb forms with the inverted subject **-mi** 'I'. An additional rule of vowel shortening of the long vowel of ***nɔ-ɔ** in the penultimate syllable occurs when it precedes the last heavy syllable which is formed by the subject pronoun **-ɗaa**. The following verb forms show shortening of the form **-nɔɔ-** before **-ɗaa**.

P.R.INCOMPL: *ɛtɛɛ

kɔkk-ɛtɛ-nɔ-ɗaa	< ***kɔkk-ɛtɛ-nɔ-ɛ-ɗaa**
give-P.R.INCOMPL-PAST-you	give-P.R.INCOMPL-PAST-P.R.INCOMPL-you

M.R.COMPL: *ii

ⁿjog-i-nɔ-ɗaa	< ***ⁿjog-i-nɔ-i-ɗaa**
have-M.R.COMPL-PAST-you	have-M.R.COMPL-PAST-you

P.R.COMPL: *aa

naŋⁿg-ɛ-nɔ-ɗaa	< ***naŋⁿg-a-nɔ-a-ɗaa**
catch-P.R.COMPL-PAST-you	catch-P.R.COMPL-PAST-you

The change of the vowel [**a**] marking the relative passive completive to [**ɛ**] also occurs without the past tense marker in inverted forms.

The derivation of the long forms of the past tense marker **-nɔɔ** also shows that this marker has fused to a certain extent with the conjugational suffix. The frequent occurrence of vowel assimilation and vowel merger in the conjugational suffix, the many semantic parameters that are expressed with the conjugational suffixes (like mood, polarity, aspect, and discourse functions), and the place of the past tense marker (an infix might well be the result of a placement between two morphemes that indicate related meanings), support the hypothesis that the conjugational suffixes are fused forms of several morphemes. In the following section an initial investigation is described, answering the question which underlying morphemes express the semantic parameters that occur in the different conjugational suffixes.

5.5.2 VOICE

All the conjugational suffixes have different forms when they combine with active voice verbs, with middle voice verbs or with passive voice verbs (see section 5.2). The voice of a verb expresses something about the argument structure of that verb (see Arnott 1956, Kemmer 1993).

Semantic distinctions of voice:

active:	subject is agent of V (action), patient of V (inchoative)
middle:	subject is affected by V, subject can be both agent and patient
passive:	subject is patient of V (action)

The hypotheses for the morphemes indicating voice is based on a comparison of all the conjugational suffixes combining with one voice. The following forms of the voice markers are postulated.

Voice markers:

	incompletive	completive
active	-	***u**
middle	***ɔ**	***i**
passive	***ɛ**	***a**

Is it difficult to postulate underlying unitary morphemes for each voice. It is obvious that the vowels in the conjugational suffixes differ when they occur with another voice. The vowels characteristic for the different voices have to be differentiated for the completive and for the incompletive verb forms. Possibly there are suppletive morphemes expressing voice in the incompletive and completive conjugational suffixes. The markers for aspect and voice have merged in such a way that an internal reconstruction of the two elements within the conjugational suffixes is not possible.

5.5.2.1 ACTIVE

The hypothesis is that the morpheme ***u** is the marker for the active voice in the completive verb forms. The active voice is the unmarked voice in the incompletive verb forms. The conjugational suffixes of the active verb forms are generally shorter than those of the middle or passive verb forms. The active voice marker ***u** can occur in the surface forms of the following active voice conjugational suffixes.

Evidence for an active voice morpheme ***u** in COMPL and non-indicative CS:

Imperative singular	***u**
Indefinite	***u-ma**
Exhortative	***u**
Verb Focus	***u**
Relative completive + Past	***u-nɔɔ**
Relative completive + inverted subject pronouns	***u-mi**
id.	***u-ɗaa**
id.	***u-ɗɛn**
id.	***u-ɗɔn**
Infinitive of active voice verbs	***u-dɛ-ʔ**

The active voice marker ***u** is often deleted whenever the syllable structure allows it. The active voice marker **-u** occurs preceding consonant initial morphemes and preceding the word boundary. The suggestion is that the active voice marker is fused with the completive marker ***i** in the negative completive conjugational suffixes. The voice marker is unmarked in the incompletive conjugational suffixes.

Active voice marker deleted or unmarked:

Imperative plural	***ɛɛ**
Subjunctive	***a-ʔ**
Incompletive	***an**
Relative Incompletive	***ata-ʔ**
Negative Incompletive	***ataa**
Completive	***ii**
Relative Completive	***i-ʔ**
Negative Completive	***aali**, ***aay**
Negative	***aa**

The vowel **[u]** appearing in completive conjugational suffixes of active voice verbs is not epenthetic. The vowel quality **[u]** is not predictable, and the vowel can also occur without necessarily preventing an ill-formed consonant sequence or syllable structure.

5.5.2.2 MIDDLE

The hypothesis for the vowel marking the middle voice is based on the occurrence of the vowel *ɔ only and uniquely in the verbal conjugational suffixes of the middle voice verbs. The vowel *ɔ appears on the surface in the following incompletive conjugational suffixes.

Middle voice marker *ɔ in INCOMPL:

Exhortative	*ɔ
Subjunctive	*ɔɔ-ʔ
Incompletive	*ɔtɔ
Relative Incompletive	*ɔtɔɔ-ʔ
Indefinite	*ɔɔma
Negative Incompletive	*ataakɔ

In the completive conjugational suffixes of the middle voice, the vowel *i has to be postulated as the voice marker for completive verb forms.

Middle voice conjugational suffixes in COMPL:

Verb Focus	*i
Completive	*ikɛ, *iima
Relative Completive	*ii-ʔ
Negative Completive	*aaki

The forms of the imperative are problematic in the present derivational system for the conjugational suffixes.

Middle voice conjugational suffixes in IMP and INF:

Imperative singular	*a
Imperative plural	*ɛɛ
Infinitive middle voice verbs	*aa-dɛ-ʔ

Also the morpheme -aa- marking the middle voice in infinitive forms seems to be an exception, for which there is no explanation yet.

5.5.2.3 PASSIVE

The marker for the passive voice marker is *ɛ in most conjugational suffixes. It occurs mainly in the incompletive conjugations, whereas in the completive the vowel [a] is more dominant. In the relative completive with inverted subject pronouns, the vowel [ɛ] is also present, just as in the infinitive. The following forms show the conjugational suffixes where the passive voice marker *ɛ is present in the surface forms.

Passive voice marker *ɛ in INCOMPL, COMPL, SUB and INF:

Subjunctive	*ɛɛ-ʔ
Incompletive	*ɛtɛ
Relative incompletive	*ɛtɛɛ-ʔ
Negative Incompletive	*ataakɛ
Relative Completive with inverted subject pronoun	*ɛ-ɗaa-ʔ
Relative Completive with inverted subject pronoun	*ɛ-ɗɔn-ʔ
Infinitive of passive verbs	*ɛɛ-dɛ-ʔ

The passive voice marker is postulated with the form *a in most completive conjugational suffixes.

Passive conjugational suffixes in COMPL:

Verb Focus	*a
Completive	*aama
Relative Completive	*aa-ʔ
Negative Completive	*aaka

The vowel *a as the passive marker in the completive conjugations is hard to explain, equally difficult to explain is the fact that the completive marker *i never appears on the surface of passive completive forms. It is very unlikely that the passive completive marker *a could be derived from the passive voice marker *ɛ and the completive marker *i. The passive morpheme *a is considered to be a suppletive form occurring in the completive conjugational suffixes. The suppletive passive morpheme *ɛ occurs in the other conjugations.

5.5.3 ASPECT

Aspect describes the relation of the event described by the verb to the point of reference (see Comrie 1976, Reichenbach 1980, Robert 1991). There are two aspects in Fulfulde.

Semantic distinctions of aspect:

completive:	the event described in the clause is completed
incompletive:	the event described in the clause has not been completed

The completive aspect describes the fact that the action or process expressed by the verb (the event) is completed at the point of reference. In unmarked present tense verb forms this means that the event is completed at the moment of speaking. In verb forms which combine with the past tense marker this means that the event had been completed at the point of reference in the past.

The incompletive aspect indicates that the event described by the verb form is not completed at the moment of reference. In the unmarked verb forms this means that the event is not completed at the time of speaking. If the incompletive verb forms combine with

the past tense marker, this means that the event was not completed at the point of reference in the past.

5.5.3.1 INCOMPLETIVE

The incompletive is marked by the morpheme ***at** in the underlying structure of the incompletive conjugational suffixes. The first vowel of the morpheme often occurs in an unstressed light syllable. This is the reason why it is often deleted, for example, when it follows verbal extensions. The same unstressed short vowel will therefore also assimilate to a vowel in a preceding syllable. The incompletive marker ***at** is present in the underlying forms of the following conjugational suffixes.

Incompletive marker ***at**:

Active voice markers:		
Incompletive	***an**	< ***at**
Relative Incompletive	***ata-ʔ**	< ***at-a-ʔ**
Negative Incompletive	***ataa**	< ***at-aa**
Middle voice markers:		
Incompletive	***ɔtɔ**	< ***at-ɔ**
Relative Incompletive	***ɔtɔɔ-ʔ**	< ***at-ɔɔ-ʔ**
Negative Incompletive	***ataakɔ**	< ***at-aakɔ**
Passive voice markers:		
Incompletive	***ɛtɛ**	< ***at-ɛ**
Relative Incompletive	***ɛtɛɛ-ʔ**	< ***at-ɛɛ-ʔ**
Negative Incompletive	***ataakɛ**	< ***at-aakɛ**

The same morpheme ***at** can also be found in the underlying structure of relative incompletive forms with inversion, or in combination with the past tense marker.

5.5.3.2 COMPLETIVE

The morpheme expressing the completive aspect is ***i**. It is only and uniquely found in completive conjugational suffixes of active voice verbs and middle voice verbs.

Completive marker ***i**:

Active voice verbs		Middle voice verbs	
Completive	***ii**	Verb Focus	***i**
Relative Completive	***i-ʔ**	Completive	***ikɛ**, ***iima**
Negative Completive	***aali**, ***aay**	Relative Completive	***ii-ʔ**
		Negative Completive	***aaki**

The completive morpheme ***i** is not found in the surface structure of the verb focus of active voice, and it is not found in the passive verb forms, where the combination of the passive and the completive is represented by the form ***a**.

Passive Completive ***a**:

Passive Verb Focus	***a**
Passive Completive	***aama**
Passive Relative Completive	***aa-ʔ**
Passive Negative Completive	***aaka**

The occurrence of the vowel [**a**] as the marker for the completive forms of passive verb forms can not be predicted from the combination of the passive voice marker ***ɛ** and the completive marker ***i**. For the moment a suppletive morpheme ***a** has to be postulated, indicating the combination of passive and incompletive.

Other completive conjugational suffixes:

Verb Focus	***u**

The Verb Focus of active voice verbs is not formed with the completive marker, only the active voice marker ***u** appears to be present in this conjugational suffix.

5.5.4 DISCOURSE

In Fulfulde, the conjugational suffixes give information about the discourse. There are three different semantic categories which are linked to discourse that can be expressed in the indicative verbal conjugational suffixes (see Saeed & Sylla 1977, Fagerberg 1983, McIntosh 1984, Labatut 1986b, De Wolf 1986c, Valette 1988, Abu-Manga 1991).

Semantic distinctions of discourse:

general (non-relative):	utterance of V does not depend on something else
focalizing (relative):	indicating focus preceding V
focus (verb focus):	contrastive emphasis on V

The forms called the general or non-relative verbal conjugations by McIntosh (1984:128) are used when no special reference is made to any constituent in the discourse. This will generally signal that the utterance stands by itself. Such verb forms are typically used in direct speech utterances, and the "general" verb forms are also used to indicate a division of the text in a story. A new point of reference in a story is often indicated with the use of a "general" verb form. The events that follow the new point of reference are often put in the relative completive or the subjunctive, these are forms which are used in a narrative sequence.

The relative forms indicate that a constituent preceding the verb form is in focus. The focus may be attracted to a nominal or adverbial phrase in the same sentence. When the

relative forms are used as a narrative in a long text or speech, the focus is attracted to the whole text preceding the verb form with a relative conjugational suffix.

Contrastive focus is put on the verb itself when it combines with a conjugational suffix of the verb focus.

5.5.4.1 GENERAL

The general completive puts emphasis on the event which is described in the sentence, indicating "neutral" new information or a new point of view. The hypothesis is that the general forms are the unmarked forms of the indicative conjugational suffixes. There is no recurring morphological component in these suffixes. The general forms are not marked by a specific morpheme.

General conjugational suffixes:

	Active	Middle	Passive
Incompletive	***an**	***ɔtɔ**	***ɛtɛ**
Completive	***ii**	***iima, *ikɛ**	***aama**

The forms of the incompletive conjugational suffixes can be derived from the combination of the voice markers and the aspect markers. The middle and passive completive markers have forms that deviate by their addition of the elements **-ma** and **-kɛ** from the relative completive conjugational suffixes. Possibly these morphemes have been added to disambiguate the forms from the relative completive conjugational suffixes.

5.5.4.2 FOCALIZING (RELATIVE)

The relative verb forms are generally characterized by final glottality and in most conjugational suffixes also by additional vowel length. The relative incompletive form has one additional vowel [**a**]. The hypothesis is that the morpheme indicating the relative incompletive consists of one vocalic time slot. Historically the vowel quality of the relative marker has been lost because it always assimilated to the other vowels in the conjugational suffix.

Focalizing morpheme: additional vowel and final glottality:

Active relative incompletive	***ata-ʔ**
Active relative incompletive + PAST	***annɔɔ-ʔ**
Active relative completive + PAST	***unɔɔ-ʔ**
Middle relative incompletive	***ɔtɔɔ-ʔ**
Middle relative incompletive + PAST	***ɔtɔnɔɔ-ʔ**
Middle relative completive + PAST	***inɔɔ-ʔ**
Passive relative incompletive	***ɛtɛɛ-ʔ**
Passive relative incompletive + PAST	***ɛtɛnɔɔ-ʔ**
Passive relative completive + PAST	***anɔɔ-ʔ**

The lengthening of the vowel marking the relative forms occurs at the end of the conjugational suffix. The vowel of the past tense marker **nɔ** is lengthened when the verb form is focalizing.

The relative forms of the completive do not share a morphological similarity. The R.COMPL appears to be characterized by vowel shortening. M.R.COMPL and P.R.COMPL differ from the general forms in the lack of the morphemes **-kɛ** and **-ma**.

Relative of COMPL without **nɔ**: final glottality

	relative	general
Active Relative Completive	***i-ʔ**	***ii**
Middle Relative Completive	***ii-ʔ**	***ikɛ**, ***iima**
Passive Relative Completive	***aa-ʔ**	***aama**

The derivation of the relative completive forms is not simply a matter of adding the underlying morphemes. The completive forms are very frequently used. The relative completive suffixes are shorter than the general forms of the same aspect and voice. Hypotheses on the underlying structures of the conjugational suffixes are written out in section 5.5.7.

5.5.4.3 FOCUSED (VERB FOCUS)

Verb focus puts emphasis on the verb itself. The conjugational suffixes expressing verb focus show a great similarity with the markers for the relative completive.

	verb focus	relative completive
active	***u**	***i**
middle	***i**	***ii**
passive	***a**	***aa**

The relative completive conjugational suffixes have one time-slot more than the verb focus. Perhaps there is no distinct underlying morpheme expressing verb focus, but it is the fact that only a voice marker is present, which characterizes the verb focus conjugational suffix. For the moment the morphological marking of the verb focus will be described as Ø (zero).

5.5.5 POLARITY

The number of affirmative verb forms is larger than the number of negative verb forms. The semantic distinctions in the polarity domain are the following:

Semantic distinctions of polarity:

affirmative: the event described is affirmed
negative: the event described is denied

The negative forms cannot express any information about discourse and mood. The form of the morpheme indicating negation is ***aa** (see Mohamadou 1989). The negation morpheme ***aa** can occur by itself in active voice verbs, describing a negation of a general state. In the

conjugational suffixes the negation morpheme ***aa** can only be preceded by the incompletive marker **-at-**. It can also occur with and without other time or aspect markers.

Negative morpheme ***aa**:

Active negative	***aa**
Active negative incompletive	***ataa**
Active negative completive	***aali**, ***aay**
Middle negative incompletive	***ataakɔ**
Middle negative completive	***aaki**
Passive negative incompletive	***ataakɛ**
Passive negative completive	***aaka**

The negative marker ***aa** is shortened in the presence of the long form of the past tense marker. This long form of the past tense marker is perhaps the result of assimilation between one of the (time slots of the) vowels of the negation marker and the vowel of the past tense marker **nɔ**.

5.5.6 MOOD

It seems useful to make a distinction between the indicative mood and the other possible moods that can be expressed by the conjugational suffixes in Fulfulde. The indicative mood describes events that are thought of as actually taking place, either in the past, present or future. The non-indicative moods express the idea that the speaker wants a certain event to happen. Non-indicative moods express desires, wants or wishes. The want can be modified in several ways. The desire can be plainly obvious such as when the imperative mood is used to indicate that the speaker wants the listener to do something. The exhortative mood is used when the speaker wants events to happen that are beyond his control, they are often used for demands to God or to life in general ("may it be so that"). The indefinite is used when an event is desired but when it is thought unlikely that it will actually happen.

The subjunctive mood also expresses a will or intention, especially when it can be translated as "in order to". The subjunctive expresses the fact that the action expressed in the verb is wanted, when it is used as a strong exhortation "X should do V". When used to describe uncompleted actions in a narrative sequence, the subjunctive also expresses the idea that the listener (or reader) is expected to do something. The subjunctive used in recipes describes an order of events that one is expected to do, as in the way described if one wants to make a mushy soup of vegetables and flour (McIntosh 1984:267-269). The subjunctive may look like the indicative conjugational categories describing events that have no relation to the will of the speaker. But, like all other non-indicative moods, the subjunctive describes events that are, in one way or another, wanted by the speaker. Examples of the uses of the subjunctive are given in section 5.4.2. The different moods that can be expressed in the conjugational suffixes of Fulfulde are repeated in the following table.

Semantic distinctions of mood:

indicative:		event has happened or will happen
non-indicative:	imperative (command)	event is wanted
	exhortative (wish)	event is desired
	subjunctive (expected)	event is wanted and expected
	indefinite (uncertain)	event is desired but not expected

The indicative moods are marked by the absence of aspect, either completive or incompletive, as described above. The non-indicative moods are marked by either Ø (zero), a vowel ***a**, or a suffix ***ma** marking each mood, combining only with voice markers.

	Active	Middle	Passive
Imperative	sg.: ***u-ʔ** pl.: ***εε-ʔ**	sg: ***a-ʔ** pl.: ***εε-ʔ**	
Subjunctive	***a-ʔ**	***ɔɔ-ʔ**	***εε-ʔ**
Exhortative	***u**	***ɔ**	
Indefinite	***uma**	***ɔɔma**	

The imperative and the exhortative forms are very similar; the vowel ***a** in the imperative for the middle voice is difficult to explain. Perhaps it is the same vowel ***a** that is found in the subjunctive? The only difference between the middle voice exhortative and the imperative is found in the forms of the middle voice which are **-ɔ** and **-a** respectively.

The emphasis on a desire is often added by the adverb **yɔ** 'that, may it be so that'. The indefinite markers are morphologically marked by a morpheme ***ma**, derived from the adverb **maa** 'probably'. This morpheme **-ma** combines with the forms found in the active imperative and in the exhortative. The subjunctive is marked by the vowel ***a** and final glottality added to the voice markers, the active voice marker being unmarked in the subjunctive.

An effort to derive the conjugational suffixes from the proposed underlying verbal morphemes is described in the following section.

5.5.7 DEEP STRUCTURE OF THE CONJUGATIONAL SUFFIXES

Having formed hypotheses about the underlying forms for the morphemes expressing the different semantic exponents of the conjugational suffixes, theoretically, it should now be possible to derive the different conjugational suffixes from the sum of the morphemes present in each of the conjugations. The morphemes that are thought to occur in the deep structure of the conjugational suffixes are listed below*.

* The basis for this deep structure analysis has been worked out in an excellent paper written by Rossel (1986) for a Fulfulde Structure Course taught at the Department of African Linguistic at the Leiden University.

Morphemes in the underlying structure of conjugational suffixes:

semantic category	form	
present tense	unmarked	
past tense	*nɔ	
active voice	INCOMPL: unmarked	COMPL: *u
middle voice	INCOMPL: *ɔ	COMPL: *i
passive voice	INCOMPL: *ɛ	COMPL: *a
incompletive aspect	*at	
completive aspect	*i	
general discourse	unmarked	
focused discourse	short vowel (assimilated to voice marker)	
focalizing discourse	vowel length	
affirmative	unmarked	
negative	*aa	
imperative mood	*u active, *a middle	
exhortative mood	*u active, *ɔ middle	
subjunctive mood	*a-ʔ	
indefinite mood	*(V)ma	
non-indicative mood	no possibility to combine with past tense	
	no possibility to combine with aspect marker	
indicative mood	possibility to combine with past tense and aspect markers	

The following table shows the proposed deep structure of indicative conjugational suffixes.

		1.	2.	3.	4.	5.	6.	7.	8.
INCOMPL	*an	at	-	-	-	-	-	-	-
INCOMPL + PAST	*annɔ	at	-	-	nɔ	-	-	-	-
R.INCOMPL	*ata-ʔ	at	-	-	-	-	V	-	ʔ
R.INCOMPL + PAST	*annɔɔ-ʔ	at	-	-	nɔ	-	V	-	ʔ
N.INCOMPL	*ataa	at	aa	-	-	-	-	-	-
N.INCOMPL + PAST	*ataanɔ	at	aa	-	nɔ	-	-	-	-
M.INCOMPL	*ɔtɔ	at	-	ɔ	-	-	-	-	-
M.INCOMPL + PAST	*ɔtɔnɔ	at	-	ɔ	nɔ	-	-	-	-
M.R.INCOMPL	*ɔtɔɔ-ʔ	at	-	ɔ	-	-	V	-	ʔ
M.R.INCOMPL + PAST	*ɔtɔnɔɔ-ʔ	at	-	ɔ	nɔ	-	V	-	ʔ
M.N.INCOMPL	*ataakɔ	at	aa	ɔ	-	-	kɔ	-	-
M.N.INCOMPL + PAST	*atanɔɔkɔ	at	aa	ɔ	nɔ	-	kɔ	-	-
P.INCOMPL	*ɛtɛ	at	-	ɛ	-	-	-	-	-
P.R.INCOMPL	*ɛtɛɛ-ʔ	at	-	ɛ	-	-	V	-	ʔ
P.R.INCOMPL + PAST	*ɛtɛnɔɔ-ʔ	at	-	ɛ	nɔ	-	V	-	ʔ
P.N.INCOMPL	*ataakɛ	at	aa	ɛ	-	-	kɛ	-	-
P.N.INCOMPL + PAST	*atanɔɔkɛ	at	aa	ɛ	nɔ	-	kɛ	-	-
VF	*u	-	-	u	-	-	-	-	-
M.VF	*i	-	-	ɔ	-	-	-	-	-
P.VF	*a	-	-	ɛ	-	-	-	-	-
COMPL	*ii	-	-	u	-	i	-	-	-
COMPL + PAST	*iinɔ	-	-	u	-	i	-	nɔ	-
R.COMPL	*i-ʔ	-	-	u	-	i	-	-	ʔ
R.COMPL + PAST	*unɔɔ-ʔ	-	-	u	nɔ	i	-	-	ʔ
N.COMPL$_1$	*aali	-	aa	u	-	i	li	-	-
N.COMPL$_2$	*aay	-	aa	u	-	i	-	-	-
N.COMPL + PAST$_1$	*aaynɔ	-	aa	u	-	i	-	nɔ	-
N.COMPL + PAST$_2$	*aalinɔ	-	aa	u	-	i	li	nɔ	-
N.COMPL + PAST$_3$	*anooli	-	aa	u	nɔ	i	li	-	-
NEG	*aa	-	aa	u	-	-	-	-	-
NEG + PAST	*aanɔ	-	aa	u	nɔ	-	-	-	-
M.COMPL$_1$	*iima	-	-	i	-	i	ma	-	-
M.COMPL$_2$	*ikɛ	-	-	i	-	i	kɛ	-	-
M.COMPL + PAST$_1$	*inɔɔma	-	-	i	nɔ	i	ma	-	-
M.COMPL + PAST$_2$	*inɔɔkɛ	-	-	i	nɔ	i	kɛ	-	-
M.COMPL + PAST$_3$	*ɛkɛnɔ	-	-	i	-	i	kɛ	nɔ	-
M.R.COMPL	*ii-ʔ	-	-	i	-	i	V	-	ʔ
M.R.COMPL + PAST	*inɔɔ-ʔ	-	-	i	nɔ	i	V	-	ʔ
M.N.COMPL	*aaki	-	aa	i	-	i	ki	-	-
M.N.COMPL + PAST	*anooki	-	aa	i	nɔ	i	ki	-	-
P.COMPL	*aama	-	-	a	-	a	ma	-	-
P.COMPL + PAST	*anɔɔma	-	-	a	nɔ	a	ma	-	-
P.R.COMPL	*aa-ʔ	-	-	a	-	a	V	-	ʔ
P.R.COMPL + PAST	*anɔɔ-ʔ	-	-	a	nɔ	a	V	-	ʔ
P.N.COMPL	*aaka	-	aa+	a	-	a	ka	-	-
P.N.COMPL + PAST	*anɔɔka	-	aa+	a	nɔ	a	ka	-	-

1: INCOMPL aspect, 2: NEG, 3: voice/aspect, 4: PAST, 5: COMPL aspect, 6: CS specific morphemes, 7: exceptional place of PAST at end CS, 8: FG.

The underlying morphemes which combine to form the different conjugational suffixes are thought to occur in a fixed order.

Order of markers in the conjugational suffixes:

incompletive	negation	voice	past	completive	other markers	final glottality
at	**aa**	**u**	**nɔ**	**i**	**kɛ**	**ʔ**
		i			**kɔ**	
		a			**li**	
		ɔ			**ma**	
		ɛ			**ki**	
					ka	
					V	

The conjugational suffixes of indicative verb forms are composed of (if present) the incompletive marker ***at**, followed by the negation marker ***aa**, followed by one of the voice markers, followed by the past tense marker, followed by a completive marker, followed by the discourse markers or by other possible additional morphemes to disambiguate the conjugational suffix. Sometimes, the past tense marker can also be found at the end of conjugational suffixes as is shown by the alternative forms **-anooli** and **-aalinɔ** of the past negative completive (N.COMPL + PAST).

The coalescence of the underlying morphemes in the following completive conjugational suffixes should have resulted in a short vowel.

R.COMPL	***i-ʔ**	<	not ***u-i-V-ʔ**	but ***i**
M.COMPL$_2$	***ikɛ**	<	not ***i-i-kɛ**	but ***i-kɛ**
M.COMPL + PAST$_3$	***ɛkɛnɔ**	<	not ***i-ikɛnɔ**	but ***i-kɛ-nɔ**

Perhaps it is wrong to postulate both a morpheme marking voice and a morpheme marking the completive aspect in their underlying structure, especially since there are different suppletive morphemes marking voice in the incompletive and the completive conjugations. For the same reason it must be concluded that the relative is marked by a vocalic time-slot in the incompletive, but not in the completive. The conclusion is that the relative completive conjugational suffix only consists of the suppletive voice morpheme for the completive.

Possibly the markers **kɔ**, **kɛ**, **ki**, **li**, and **ma** have been added to disambiguate the many similar verbal conjugational suffixes. The marker **-ma** occurs in the middle and passive completive and in the indefinite, it is possibly related to the adverb **maa** 'possibly'. The marker **-li** is specific for the negative completive **-aali**. The markers with **[k]** only occur in the negative conjugational suffixes, the vowel is linked to voice and aspect: **kɔ** in the middle incompletive, **-kɛ** in the middle completive, **-ki** in the middle completive, and **-ka** in the passive completive. The etymological origin of these markers is not clear.

The non-indicative conjugations do not combine with aspect markers, the past tense marker, the negation marker, or discourse markers. The derivation of their forms involve

voice and mood markers only. The following table shows the proposed deep structure of the non-indicative conjugational suffixes.

		voice	CS specific	final glottality
IMP sg	*u	u	-	ʔ
M.IMP sg	*a	ɔ	a	ʔ
IMP pl	*ɛɛ	u	ɛɛ	ʔ
M.IMP pl	*ɛɛ	ɔ	ɛɛ	ʔ
EXH	*u	u	-	-
M.EXH	*ɔ	ɔ	-	-
INDEF	*uma	u	ma	-
M.INDEF	*ɔɔma	ɔ	ma	-
SUB	*a-ʔ	-	a	ʔ
M.SUB	*ɔɔ-ʔ	ɔ	a	ʔ
P.SUB	*ɛɛ-ʔ	ɛ	a	ʔ

There are two forms where the combination of these underlying morphemes would lead to the wrong vowel length in the surface form of the conjugational suffix.

M.IMP sg	*a	< not	*-ɔ-a-ʔ	but	*aʔ
M.INDEF	*ɔɔma	< not	*-ɔ-ma	but	*-ɔ-V-ma

The vowel [a] in the imperative singular could be a suppletive morpheme that is already marked for voice, so perhaps the voice morpheme *ɔ should not be reconstructed in the underlying structure of the middle voice singular imperative conjugational suffix. It is not clear why the first vowel in the middle voice indefinite conjugational suffix -ɔɔma is long.

The active form of the subjunctive is only correctly derived when its voice is unmarked, not containing the active voice marker for completive forms *u. It is not clear why this voice marker is present in the other forms of the non-indicative moods. Sometimes vowel length, mostly a result of merger of more than one vowel, is hard to explain. But these are not the only questions that should be answered to arrive at the correct forms of the conjugational suffixes.

The structures presented above are only an approximation of a possible underlying form, based on the semantic and morphological complexity of the conjugational suffixes. The proposed underlying deep structures do not result in the correct derivation of all the conjugational suffixes. However, it has been demonstrated that some semantic exponents of the verbal conjugation can clearly be linked to certain morphological forms. To arrive at a watertight derivation, historical information should also be taken into consideration. The comparative method, applied to Fulfulde and other Atlantic languages could also perhaps explain some of the verbal markers which are left unexplained here. Such research falls, however, beyond the scope of the present study.

5.6 SOME VERB-RELATED MINOR WORD CLASSES

The verb-related minor word classes which are described here are copulas, modal predicates, adverbs, ideophones, and a number of particles. These word classes have in common the fact that they can not be referred to by a nominal concord. Copulas can function like a verb, being part of the predicate. Modal predicates are fixed conjugated verb forms that function as adverbs. Adverbs modify the verb. Ideophones are a specific type of adverbs. The term particle is used here in its most general sense, small uninflected words that can express pragmatic and discourse-related functions. The particles which are distinguished here are the conjunctions, the question particles, and topic markers. There is overlap between these word classes, a word can sometimes be classified in different word classes. For example, the relation between conjunctions and topic markers is explicitly present in the word **kaa**, as a conjunction it is translated as 'but', as a topic marker it is translated as 'however'.

5.6.1 COPULAS

There are two words in the Fulfulde of Maasina that occur in non verbal sentences connecting two noun phrases that can be called copulas. The copula of identity **yɔ** connects two noun phrases that describe the same thing or person. The locative copula **ʔana** connects two noun phrases of which the last noun phrase describes a location. But both copulas can also occur in verbal sentences, acting as auxiliaries to modify the verb. In the following two sections the use of the copulas in both non-verbal and verbal sentences will be exemplified.

5.6.1.1 THE COPULA OF IDENTITY yɔ

The copula **yɔ** indicates a relation of identity. A typical use of the copula **yɔ** is to equate two noun phrases with each other. It has an identificational as well as an attributive use.

taasawal	**lidɓi**	**yɔ**	**buudi**	**capandɓɛ**	**jɔy**
plate	fishes	COP	coins	tens	five

'A plate of fishes is 250 CFA.' (Tioulenta 1980a:19)

The copula of identity can only appear between two noun phrases. When the subject is a pronoun, i.e. a personal pronoun or a class concord, the copula **yɔ** cannot occur. The pronominal subject and the nominal predicate are juxtaposed to each other in a non-verbal sentence which expresses identity between the pronominal subject and the nominal predicate.

mɔ ɓii ʔusumaanu	'She is the child of Usman.'
mɔ durɔɔwɔ	'He is a herdsman.'
ɓum pullɔ	'It is a Pullo.'
ʔa jɔm-ʔanⁿdal	'You are knowledgeable.'

The copula **yɔ** can also connect noun phrases that have been extended with relative clauses.

mɔ ⁿjii-ɗaa fuu yɔ jaaw-n-ii-ɗɔ
who see-R.COMPL-you all COP be fast-CAUS-M.R.COMPL-CL
'Every one that you see is hasty.'

The copula of identity is also used in pseudo cleft sentences.

kɔ yiɗ-i faamudɛ yɔ yalla mɔ hokk-ii ɗum
what want-R.COMPL understand-INF COP whether he_1 give-COMPL him_2
laawol faa fuɗɗ-a lanⁿdiⁿdaaⁿdɛ-ʔ
time/occasion for begin-SUB consult
'What he wanted to understand was whether he was given an occasion for getting advice.' (Tioulenta 1980a:11)

A cleft construction with the copula **yɔ** is typical in sentences with an exhortative verb form.

yɔ ʔalla wuur-n-u mɔ
COP God live-CAUS-EXH him/her
'That God make her/him live'.

The word **yɔ** in an exhortative sentence can be omitted, but the word **yɔ** is not omitted in this fixed expression pronounced when children are born or given their name. The word **yɔ** appears to emphasize the strength of the wish expressed in the sentence.

5.6.1.2 LOCATIVE COPULA **ʔana**

The locative copula **ʔana** expresses the location of an entity somewhere. In non-verbal sentences it has to be followed by a locative constituent, i.e. by a locative noun or by a locative prepositional phrase.

ⁿdiyam ʔana ley mayrɛ
water LOC in it
'Water is in it.'

sɛwrɛ ʔana burgu
herd LOC inner Niger-Delta
'The herd is in the inner Niger-Delta.'

The locative copula can also combine with the adverb **nii** 'thus, just so' to form presentational predicates, as the compound word **ʔannii** 'here is'. The locative copula **ʔana** can also be found in the word **ʔannaa** 'there is'.

ʔana with **nii** 'right here'

dɛwtɛrɛ ⁿdɛ ʔan-nii
book the LOC-just
'Here is the book.'

ʔana with **naa** 'around here'

naggɛ ʔan-naa
cow LOC-just-NEG
'There is a cow'

The words **ʔannii** and **ʔannaa** can be compared in function with the French words "voici" and "voilà". They are used to present an item, which requires that the object presented is

within the visual field of the speaker. The etymological origin of the second part ***naa** in the word **ʔannaa** is not obvious. Possibly the form **-naa** here is a contraction of the word **nii** 'just' and the negative conjugation **-aa-**. In other words, **ʔannaa** 'there is' is perhaps derived from the negation of **ʔannii** 'right here, exactly here'. The proposal for the etymology of **ʔannaa** gives the paraphrase "not right here, not exactly here", which is a possible paraphrase for something that must be within the visual field of the speaker since it is presented but which is not exactly in the same place as the speaker since it is "there" and not "here".

The locative copula **ʔana** expressing location can only appear after a nominal subject, it precedes a locative phrase. The locative copula **ʔana** cannot occur when the subject is pronominal. Special locative forms of both the personal pronouns and the subject concords are used in locative non-verbal sentences.

ʔɔmɔ bamakɔ	'He is in Bamako.'
ʔɛɓɛ burgu	'They are in the Inner Niger-Delta.'
ʔeⁿdu to	'It is there.'

The pronominal subject in a non-verbal sentence expressing location is formed by the subject pronoun which is preceded by a marker *ʔɛ.

The locative copula **ʔana** and its derived forms can be used to modify subjunctive and relative completive verb forms. The combination of the locative marker and the subjunctive has been treated in the literature as a separate progressive conjugation. When this locative precedes a verb stem conjugated with subjunctive, the verb phrase expresses the ongoing occurrence of the action or process expressed by the verb at the moment of speech.

Forms of **ʔana** modifying subjunctive verb forms:

nay ʔan-nii tacc-it-a maayɔ
cows LOC-just cut-REV-SUB river
'(Look) the cows are crossing the river.'

laabi ɗiɗi ley hitaaⁿdɛ nay ʔana tacc-it-a maayɔ
times two in year cows LOC cut-REV-SUB river
'Two times a year the cows cross the river.'

The first sentence can only be truthfully uttered if the cows which are crossing the river are actually in the proximity of the speaker. The meaning of **ʔannii** as a verbal modifier is very much the same as its meaning in a non-verbal sentence. The locative marker **ʔana** in the second sentence mainly indicates that the action takes place over a longer period of time, a notion more often expressed by locative markers in different languages of the world. The incompletive meaning of the subjunctive marker **-a** indicates here that the action referred to (the crossing of the river by cows) is expected and habitual (a habit is an expected recurring event).

Likewise the locative marker modifying a relative completive verb form has not been described as such, but as one discontinuous morpheme which is called the stative.

ʔana modifying relative completive verb forms:

mootti ʔana heewi yimɓɛ
Mopti LOC have many-R.COMPL people
'Mopti has many people' -or- 'Mopti is filled with people.'

koreeji maa ʔana ⁿdeen-ii ?
family members your LOC be fine-M.R.COMPL
'Is your family doing fine?'

The fact that the verbal constructions with the locative in the above phrases has been called the stative conjugation follows from the particular semantic structure of the verb roots rather than from the combination of the meaning of the locative marker and the relative completive verbal marker. Verbs like **hɛɛwdɛ** 'fill, be(come) many' and **rɛɛnaadɛ** 'be(come) fine' are inchoative verbs: they indicate a point of change from one state into another state. A more literal translation of the verb **hɛɛwdɛ** could be paraphrased as 'become full' indicating a change of state from being little or being empty to the state of being many or being filled. A more literal translation of the verb **rɛɛnaadɛ** could be paraphrased as 'become fine' indicating a change of state from not fine, unprotected, ill etc. to the state of being fine, i.e. protected, healthy etc. To describe the fact that the change of state has occurred, the verb combines with the completive marker. To describe the fact that the state resulting from the completion of the change of state is continuing, the verb is modified with the locative marker. The locative marker again only indicates that the action, state or process expressed in the verb form (the event) takes place over a longer period of time. It is true that the locative marker is often used in combination with these inchoative verbs, but the locative marker can also be found to express duration in combination with verb forms that are not based on inchoative verb roots.

ʔana modifying **filaadɛ** 'tell' (non-inchoative verb):

taw-ii taaniraaɓɛ mum ʔana pil-ii ɗum, taal-an-a taalol
find-COMPL grandchildren his$_1$ LOC tell-M.R.COMPL him$_1$ tell-DAT-SUB story
'It's so that his grandchildren have continuously told him that he should tell a story.'
(Tioulenta 1980a:13)

The locative marker in the example above emphasizes the fact that the grandchildren have constantly occupied the grandfather by asking him to tell stories constantly, all the time, and repeatedly, which is also expressed elsewhere in the text.

ʔ**ana** modifying **wɔnnɔɔ** 'was':

mɔ ʔitt-i **teŋⁿgaadɛ makkɔ ʔana wɔn-nɔɔ** **dow hɔɔrɛ makkɔ**
he take off-R.COMPL hat his LOC be-R.COMPL-PAST on head his
'He took off his hat that was (all the time) on his head.' (Tioulenta 1980a: 10)

The locative ʔ**ana** in the above sentence describes the fact that, before putting his hat off, it had been on his head for a long period of time. The locative ʔ**ana** indicates duration of the event expressed in the verb which it modifies.

The locative meaning of the copula ʔ**ana** recurs especially in the form ʔ**annii** both in its use in non-verbal sentences as in its use as a verbal modifier. The word ʔ**ana** is polysemic, it can indicate both location and duration.

In earlier studies of Fulfulde, the similarity of the locative and the durative has been noticed, but the locative copula ʔ**ana** in non-verbal sentences was not identified with the ʔ**ana** found in verbal sentences preceding the verb in the progressive and stative conjugation. Ard (1979) is the first to describe these conjugations as periphrastic verbal constructions developed from locative expressions.

There are several indications which suggest that the word ʔ**ana** indicating both location and duration should be treated as one polysemic word. In the first place, the forms of this marker are completely identical in all contexts. Secondly, the locative and the durative meaning are related. In non-verbal sentences the copula ʔ**ana** indicates the presence of the subject at a location at the time of speech. In verbal sentences the ongoing process or state takes place at the time of speech or at the time of reference when the verb form contains the past tense maker **nɔ**. Although the spatial and locative meaning of ʔ**ana** is more emphasized in non-verbal sentences, and the temporal or durative meaning is more focused in verbal sentences, both uses of ʔ**ana** as a copula and as a verbal modifier indicate a unity of time and place.

5.6.2 MODAL PREDICATES

Modal predicates are conjugated verb forms that occur in adverbial phrases, and have a function similar to the functions of adverbs: modifying the verb. The meaning of these modal predicates is also similar to the meanings which are typical for adverbs. Modal predicates can say something about time, place or manner (mood). In Fulfulde, the modal predicates occur sentence initially. They are often formed from verb stems describing temporal or spatial processes.

ɓɔɔy-	'last, take long'	**ɓooyi**	'a long time ago'
		ɓooyii	'long time ago, it has taken some time'
		ɓɔɔyaa	'not for long'
		ɓɔɔymaa	'for a long time' [will probably last]
		ɓɔɔyataa	'it won't take long, right away, in a moment'

taw-	'find'	**tawɛtɛ**	'may be'
		tawii	'it is so that' [lit. it has been found that]
		tawi, tawii	'it is so that'
		tawa	'it is so that' [lit. it is habitually found that]
ʔad-	'go first, lead'	**ʔadan**	'before, beforehand'
hɛdd-	'remain'	**hɛddɔ**	'then, and it happened that'
laat-	'become'	**laatɔɔ**	'when'

Adverbial clauses occur either sentence initially or sentence finally, and so do these modal predicates which function as an adverbial clause. The use of these modal predicates is exemplified in the following sentences.

mi yahan ɓɔɔyataa	'I will leave in a moment.'
tawɛtɛ mɔ waran	'May be he will come.'

The words for night **jɛmma** and afternoon **ɲalɔɔma** are etymologically conjugated verb forms that can occur in adverbial phrases. They have become nouns because they can be referred to with the concord of the 'O class. Etymologically the two words are formed from a verb stem that combines with the indefinite conjugational suffix **-ma**.

jɛŋⁿg-	+	**-ma**	->	**jɛmma**	'night'	'O class
ɲal-	+	**-ɔɔma**	->	**ɲalɔɔma**	'afternoon'	'O class

The word **jɛmma** is based on the root of the verb **jeŋⁿgudɛ** 'be late in the evening' from which the noun **jɛŋⁿgɔ ⁿgɔ** 'the evening' is derived. The combination of this verb root with the active voice marker of the indefinite conjugational suffix **-ma** describes the period that is likely to follow the evening: the night. The word **ɲalɔɔma** 'afternoon' is based on the same stem as the verb **ɲalwudɛ** 'to be in zenith (of the sun), to be midday'. The combination of this verb root with the middle voice marker of the indefinite **-ɔɔma** describes the period that is likely to follow midday: the afternoon. The etymology of these words has become opaque, mainly because the indefinite conjugational suffix is not used frequently. Thus the word class of these adverbs has been reinterpreted: they are classified as nouns. As a result they can be referred to with the concord of the 'O class, a class where all nouns without a proper noun class suffix are found (like e.g. loan-words).

5.6.3 ADVERBS

Adverbs can form an adverbial phrase modifying the verb. Adverbials are words that express how, where, when or why the action or process described in the main verb of the sentence takes place. Thus by their meaning, adverbs can be divided into adverbs of manner (how), adverbs of time (when), and adverbs of place (where), and adverbs of reason (why). In the syntactic structure of a sentence the information of verb modification is expressed by adverbial phrases. Adverbial phrases can consist of an adverb, an adverb phrase, a noun phrase, or a prepositional phrase (Crystal 1991:11).

Adverbial phrases:

adverb:	**kɛɛɲɛ mɔ wari**	'Yesterday he came.'
adverb phrase:	**jooni jooni mɔ wari**	'Just now he came.'
noun phrase:	**yɔntɛrɛ ɓettiiⁿdɛ mɔ wari**	'Last week he came.'
prepositional phrase:	**hakkuⁿdɛ naaⁿgɛ mɔ wari**	'At noon he came.'

This study limits itself to the description of word formation. Therefore only adverbial words, whose occurrence is syntactically restricted to adverbial phrases, are discussed here. There are also some conjugated verb forms that can occur in adverbial phrases. These modal predicates have been discussed in the previous section. The class of words commonly called adverbs are words expressing time, place or manner. Ideophones are a special group of adverbs, they are discussed in section 5.6.4 .

The class of adverbs contains a limited number of words. As stated above, adverbs can be divided on the basis of their meaning into adverbs of place, time and manner. They will be discussed here in that order.

Adverbs of place

The word formation of the adverbs of place is very similar to the word formation of demonstratives, both in form and meaning. Actually there are only four true adverbs of place that take the same derivatives as the demonstratives.

ga	'here, right here'
gaa	'here, right here (deictic)'
ɗɔ	'here, around here'
ɗɔɔ	'here, around here (deictic)'
ɗɔɔn	'here, around here (referential)'
to	'there, at that place'
too	'there, at that place (deictic)'
toon	'over there, at that place in question (referential)'
hɛɛn	'in it, in there'

The adverb **ga** 'right here' (within eyesight) does not combine with the referential marker, possibly because the referential marker proto-typically refers to things that you can't see, but which you have talked about. The adverb **hɛɛn** only combines with the referential marker, possibly because when something is within something else, it can't be seen: a proto-typical situation for the use of the referential marker.

war <u>ga</u>	'Come here.'
taaniraaɓɛ maa tawan ⁿdu <u>ɗɔɔ</u>	'Your grandchildren will find it here.'
maayɔ walaa <u>toon</u>	'There is no river over there.'
mɔ waɗi <u>hɛɛn</u> haakɔ	'She has put leaves in it.'

The CVVC forms **ɗɔɔn**, **toon**, **hɛɛn** often are shortened to a CVC form **ɗɔn**, **ton** and **hɛn**, especially when they are not in a stressed position. This is a further indication that the

CVVC syllable is a marginal structure in Maasina. A few adverbs of place are derived from compounds which contracted into single words, such as the words for east and west.

hirnaa^{n}gɛ, hirna	'west'	< **hiir-**	'be evening'	+	**naa^{n}gɛ** 'sun'
funnaa^{n}gɛ, funna	'east'	< **fuɗ-**	'rise'	+	**naa^{n}gɛ** 'sun'

These words are derived from the verb stems **hiir-** 'become evening' and **fuɗ-** 'rise' and the noun **naa^{n}gɛ** 'sun'. The word **hirnaa^{n}gɛ** describes where the sun is in the evening: in the west. The long vowel [**ii**] of the morpheme **hiir-** is shortened in the derivation from ***hiirnaa^{n}gɛ** because it occurs in an unstressed CVVC syllable and to avoid this less preferred CVVC syllable structure. The word **funnaa^{n}gɛ** describes where the sun rises: in the east. The final [**ɗ**] of the stem **fuɗ-** 'rise' is assimilated to the initial [**n**] of the word **naa^{n}gɛ** 'sun' in the form ***fuɗnaa^{n}gɛ** because an obstruent like [**ɗ**] cannot occur in syllable final position.

Normally, constructions compounding a verb stem with a noun remain in the class of nouns like the compound **mɔ tiiɗa-hɔɔrɛ** 'he is a stubborn person' (lit. hard of head). Probably because of their spatial meaning, the words **hirnaa^{n}gɛ** 'west' and **funnaa^{n}gɛ** 'east' and their abbreviated forms **hirna** and **funna** for east and west changed into adverbs, they can no longer be referred to with a class concord. Different words for north and south remain nouns and can be referred to with a concord. There are different words that are translated as north and south. They are all nouns, their primary meaning denotes what is in the north or south rather than the direction itself.

saahal ^{n}gal	'north' (lit. desert) [Maasina]
ɓaleeri ^{n}di	'south' (lit. black land) [Maasina]
soɓɓulɛ ɗɛ	'north' (lit. corners) [Duwansa]
hɔɔrɛ huɗɔɔrɛ ^{n}dɛ	'south' (lit. head of grass) [Duwansa]

Words for east and west are the same in all dialects, whereas north and south mostly describe landscape features that happen to be in the north or the south of a certain dialect area.

Adverbs of time

Many adverbs of time can also occur with the referential marker **-n**, and there is some variation in the vowels which seems to correspond to regional differences. These words are not nouns even though some of the translation equivalents may suggest otherwise; these words cannot be referred to with a nominal concord.

jaŋ^{n}gɔ		'tomorrow'
han^{n}dɛ		'today'
kɛɛɲɛ	**kɛɛɲɛn**	'yesterday' [Maasina]
kɛɛɲa	**kɛɛɲan**	'yesterday' [Haayre]
hikka		'this year'
mawuuri		'next year'
mawuurti		'in two years'

tem^{m}bu		'just, only a moment ago'
jooni	**joonin**	'immediately'
naanɛ	**naanɛn**	'just, only a moment ago'
ʔabadaa		'ever'
haŋki	**haŋkin**	'yesterday evening'
kasa		'again' [Haayre]
kasi	**kasin, kasen**	'again' [Maasina]
rɔwani, rawani	**rawanin,**	'last year'
rɔwtani	**rɔwtanin, rawtanin, rɔwtanɛn**	'two years ago'

In Maasina the word **kɛɛɲɛ** 'yesterday' ends in the vowel [ɛ], in Haayre the word ends in a vowel [a], **kɛɛɲa** 'yesterday'. In Haayre a final vowel [a] is found in the word **kasa** again, whereas in Maasina this word ends in [ɛ] or [i], a variation that is also found in the word **rɔwtanin, rɔwtanɛn** 'two years ago'. The first vowel in **rowani** 'last year' can change to [a], because unstressed short vowels often assimilate to the vowel in the next syllable. The impression is that these vowel changes do not indicate a difference in meaning, however the absence or presence of the referential marker does.

The referential marker changes the time of reference, e.g. **rawani-n** 'last year + REF' refers to the year before the moment of reference, i.e. 'last year' or 'the year before'. The time of reference is then indicated by the verb in the sentence and by the context. No forms with the referential marker **-n** are found for some adverbs of time. The word **jaŋ^{n}gɔ** is not found ending in **-n** in the data, instead the word can be used followed by a possessive pronoun **jaŋ^{n}gɔ mum** to express 'the next day' (after the indicated time described in the context).

Possibly the adverbs **jaŋ^{n}gɔ** 'tomorrow' and **han^{n}dɛ** 'today' are historically derived from nouns in the NGO class and in the NDE class respectively. Syntactically, these words cannot combine with nominal modifiers. These words can only combine with the completive forms of the verb **faɓɓ-** 'pass time' and ***heecc-** 'be elder' to form adverbial clauses denoting the day after tomorrow and the day before yesterday respectively. The verb ***heecc-** 'be elder', possibly extended with the reversive extension **-it-** is often realized as either **heec-** or **hecc-** to avoid the less preferred CVVC syllable.

faɓɓi jaŋ^{n}gɔ	'day after tomorrow'
faɓɓiti jaŋ^{n}gɔ	'in three days'
faɓɓititi jaŋ^{n}gɔ	'in four days'
hecci kɛɛɲɛ	'day before yesterday'
hecciti kɛɛɲɛ	'three days ago'
heccititi kɛɛɲɛ	'four days ago'

The words **rɔwani** 'last year', **rɔwtani** 'two years ago', **mawuuri** 'next year' and **mawuurti** 'in two years from now' are considered to be adverbs of time because of their temporal meanings and because of the possibility of adding the referential marker **-n** to

them. The etymology of the word **mawuuri** could be related to the adverb of manner **maa** 'probably' and the verb stem **wuur-** 'live', paraphrasing the next year as the time one is "probably still alive". The verbal origin of these adverbs is also indicated by the presence of the verbal extension **-t-** 'back, again' in these adverbs.

Adverbs of manner

Of all the adverbs, the adverbs of manner, also called modal adverbs, are the most closely related to the verb forms. First the modal adverbs will be listed, then their influence on the verb will be discussed.

kanaa	'obligatorily'	**maa**	'probably'
sɔnaa	'obligatorily, except'	**mɛɛrɛ**	'nothing, for nothing'
sinaa	'obligatorily, except'	**sannɛ**	'much, very, too much'
wɔta	'don't'	**sɛɛɗa**	'a bit, little'
fati	'don't'	**tan**	'only, just'
pati	'don't'	**yeru**	'like'
law	'quickly'	**kala**	'each'
fuu	'all, every, completely'	**nii**	'thus, this is how'
nɔ	'as, like'	**nɔɔn**	'thus, so'
hɔnɔ	'as, like'	**nɔn**	'this is how'

The modal adverbs co-occur with one particular conjugational category. The modal adverb **maa** 'probably' combines with the verb in verb focus, as in the following example.

maa mi war ka...	'I (probably) will come but...'
maa taw	'probably'

The first sentence above describes a situation where the subject referred to cannot say no, he or she is expected to come, but rather would prefer not to. Modal adverbs expressing obligation are **kanaa**, **sɔnaa**, **sinaa**. The subjunctive co-occurs with adverbs which express an obligation.

kanaa mi wara	'I must come.'
sanaa mɔ jɔɔɗɔɔ	'He should sit down.'

There are a number of modal adverbs like **hɔnɔ**, **nɔ**, **nii**, indicating vaguely how something is done, translated as 'thus'. The verbs in sentences where these adverbs occur, combine with the circumstantial extension **-ir-**. The adverb **nii** 'thus' in the following example requires the circumstantial extension.

nii gɔllɛ fecc-ir-tɛɛ ley maasina
thus work divide-CIRC-P.R.INCOMPL in Maasina
'This is how the work is divided in Maasina.'

The adverbs **fati**, **pati**, **wɔta** are geographically distributed variants of the same word. These adverbs form the negation of the subjunctive.

fati ᵐbɔy-aa
don't cry-SUB-you (SPro)
'You should not cry.'

Not all adverbs of manner require a specific verbal conjugation as shown in the following examples.

war law	'Come quickly.'
sɛɛɗa teew ɲaamɛtɛɛ	'Meat is only scarcely eaten.'
mi yiɗu maa sannɛ	'I love you very much.'
ɓɛ ʔɛggan tan tewtudɛ huɗɔ	'They only migrate to find grass.'

There are probably more adverbs of manner than those cited here, but these are the most frequent ones.

5.6.4 IDEOPHONES

Ideophones are a special type of adverbs. In Fulfulde they will always receive the main stress of the sentence, i.e. they are always in focus. Their phonological shape differs from that of other words in Fulfulde in that any consonant can occur syllable finally in ideophones whereas elsewhere in the language a syllable final consonant has to be sonorant. The ideophones are semantically restricted to co-occur with a certain verb or adjective. The following sentences show some ideophones and the words which they modify.

pɛp	'very little'	**hɛɛwaa pɛp** 'Only a very small quantity, not very much.'
nur	'very straight (nose)'	**dɛbbɔ koofol makkɔ ʔana darii nur** 'The woman, her nose is very straight.'
jɛr	'perfect (Fulfulde)'	**ʔɔmɔ haala fulfuldɛ jɛr** 'He speaks Fulfulde clearly, with ease.' **sɔ ʔa ɓɔɔyan ʔa waawa fulfuldɛ jɛr** 'If you continue, you might speak perfect Fulfulde.'
coy	'very red'	**ʔana wojji coy** 'It is very red.'
buy	'very yellow'	**ʔana ʔooldi buy** 'It is very yellow.'
kirim, krim, kurum	'very black'	**gitɛ ɓaleeji kirim** 'very black eyes'
paca	'very white'	**ʔana rawni paca** 'It is very white.'

puka	'very grey'	**ʔana furɗi puka** 'It is very grey.'
dus	'very bad (smell)'	**ʔana luubi dus** 'It smells very bad.'
fuŋa	'very nice (smell)'	**ʔana ʔuura fuŋa** 'It smells very nice.'

There are a number of ideophones which are onomatopoeic. They can deviate even more from the phonological system. The vowel [ə] is not used to distinguish meaning in Fulfulde, it occurs in the ideophone used to depict the sound of rumbling thunder.

karrr	'sound of lightning striking'
kaw	'sound of lightning striking'
gədədədə	'sound of thunder rumbling'
gudududu	'sound of thunder rumbling'

All ideophones have a very expressive value. They are used to brighten up stories. Ideophones can be used to increase the suspense in a story and startle the listeners. The use of an ideophone mostly causes a smile on the face of the listeners.

5.6.5 QUESTION PARTICLES

There are a few question particles in Fulfulde, they are placed either in initial or final position of a sentence. They are used to signal yes-no questions.

naa, na

miɗɔ waawi fijudɛ ʔɛ maa na ?
I+LOC can-R.COMPL play-INF with you qp
Can I play with you?

kori

kori ⁿgeeⁿdi ⁿdii ʔana reenii ?
qp village the LOC be well-M.R.COMPL
Is everything all right in the village?

Both question particles seem to be derived historically from modal predicates. The question particle **naa** is derived from a conjugated verb form of the verb stem **wɔn-** 'to be' conjugated with the negative marker **-aa**: ***wanaa**, paraphrased as "isn't it?". It is added as a question tag to the yes-no question. It is not obligatory, the main indication for the yes-no question is its intonation pattern.

The question particle **kori** is also added at the beginning of yes-no questions, it also carries a meaning of "hopefully". The final vowel [i] could be the relative completive conjugation. The addition of this question particle indicates that one hopes and expects the answer to be yes. Its etymology is unclear.

5.6.6 CONJUNCTIONS

Conjunctions are defined as words that connect sentences (Crystal 1991:73). The following words are classified as conjunctions in Fulfulde.

dee	'further, thereupon, subsequently'
faa	'untill, in order to'
sabi, sabu, saabi, saabɛ, saabaabu	'because'
sɔ, se, si, sa	'when, if'
yalla	'whether, if'
ʔila, gila	'since'
kaa	'but'
kammari	'because'
nɔ	'like'
ⁿgam	'therefore, to the benefit of'

In Fulfulde the conjunctions have to be bound to a clause with which they form an adverbial clause expressing how, when, where or why the action in the connected clause happened. The conjunctions occur in adverbial clauses functioning as sentence connectors in the following examples.

dee 'further, thereupon, subsequently'

baaba makkɔ daɲ-i jawdi sannɛ dee,
father her reap-R.COMPL wealth much subsequently,
hokk-i mɔ huuⁿdɛ fuʔ kɔ mɔ lanⁿd-ii
give-R.COMPL her thing all that she ask-M.R.COMPL
'Her father was very wealthy subsequently, he gave her everything she asked for.'

dɔɔm-am ɗɔɔ faa mi jɛɛw-ɔy-a
wait-IMPsg-me here so that I see-ALT-SUB
kaaɗɔ mɛɛrɛɛjɔ ʔɔɔ dee, min ⁿgar-t-id-a
Bozo worthless this subsequently we come-REV-COM-SUB
'Wait here for me so that I go and look for this terrible Bozo and subsequently, we'll come back together.'

The conjunction **dee** is usually put at the end of the adverbial clause. In the first example the adverbial clause indicates the circumstance that makes it possible for her father to give her anything she asks for because he is very rich. In the second example the referent of speaker will come back together with the Bozo as a consequence of the fact that he is going to look for him. The speaker thus expresses the fact that he is sure that his looking for the Bozo will lead to him finding the Bozo. The adverbial clause expresses the circumstance leading to the coming back together.

faa 'until, in order to, so that'

ɓɛ ⁿjeh-ii faa ɓɛ ⁿjott-ii maayɔ maŋⁿgɔ
they go-COMPL until they arrive-M.R.COMPL river large
'They went until they reached a large river.'

fati ɓɛ kers-u, sɔ ɓɛ ⁿjood-d-iima faa ɓɛ kaal-d-a
don't they shame-VF if they sit-COM-M.COMPL so that they speak-COM-SUB
'They shouldn't be ashamed, if they sat together in order to talk with each other.'
(Tioulenta 1980a:18)

The adverbial clause with **faa** delimits the time of the verb **ⁿjɛh-ii** 'went' in the above example. In combination with the subjunctive the adverbial clause with the conjunction **faa** expresses the reason for the action of the main verb.

sabi, sabu, saabi, saabɛ, saabaabu 'because'

to maasina, dɛmal maarɔ, sabi ⁿdiyam ɓur-i hɛɛw-dɛ
there Maasina, cultivation rive, because water surpass-R.COMPL be much-INF
'In Maasina, there is the cultivation of rice, because there is a lot of water.'

sabi ɟiiwɔɔⁿdɛ ⁿdɛ ʔɔ yalt-ataa
because rainstorm the he go out-N.INCOMPL
'Because of the rainstorm, he will not go out.'

ʔɔ walaa ga sabu ʔɔmɔ dɔɔm-a nay
he be-NEG here because he+LOC wait-SUB cows
'He isn't here because he is watching the cows.'

Adverbial clauses with the conjunction **sabi** or any of the other forms for the word 'because' describe the reason for the action of the main verb. The conjunction **sabi** can not only be followed by a verbal predicate but it can also be followed by a noun, as in the adverbial phrase **sabi ɟiiwɔɔⁿdɛ** 'because of the rain storm'.

so, sɛ, si, sa 'when, if'

se toɓ-i, laawol ⁿgol hecc-iɗ-an
when rain-R.COMPL road it be wet-INCH-INCOMPL
'When it rains, the road is wet.'

ʔɔ war-an-nɔ sɔ mɔ waaw-nɔ
he come-INCOMPL-PAST if he can-R.COMPL-PAST
'He would come if he could.'

sɔ ⁿduŋⁿgu ɓelt-ikɛ dabbuⁿdɛ naat-a
when rainy season pass-M.COMPL cold season enter-SUB
'When the rainy season has past, the cold season enters.'

sa ʔa wuɟɟ-ii ʔa fiy-ɛ
if you steal-COMPL you beat-P.VF
'If you have stolen, you really should be beaten.'

The forms **sɛ**, **si**, **sɔ** are possibly geographically distributed. The form **sa** is a form that occurs only before the subject pronoun **ʔa** 'you'. It can also replace **sɔ** and **ʔa**, in that case the two words have merged.

yalla 'whether, if'

midɓɔ sikk-it-i yalla mɔ garɔɔwɔ
I+LOC wonder-REV-R.COMPL whether he come+AGENTIVE+CL
'I doubt whether he will be coming.'

hoorn-u yalla ʔadɓa waaw-i
try-IMPsg whether you+LOC can-R.COMPL
'Try if you can.'

ʔɔ lamⁿdii yalla sammba warii
he ask-M.R.COMPL whether Samba come-COMPL
'He asked whether Samba has come.'

The conjunction **yalla** introduces a clause whose realization or truth is not known. It expresses some doubt about the actual occurrence of the action expressed in the main clause.

ʔila, gila 'since'

ʔedɓum dɓɔ gila ʔabada
it+LOC here since ever
'It's there since eternity.'

ⁿduŋⁿgu, ʔila ⁿdiyam naat-aay, rɛmɔɔɓɛ ʔaaw-an gɛsɛ mũʔɛn
rainy season since water enter-N.COMPL farmers sow-INCOMPL fields their
'In the rainy season, before the water enters , the farmers sow their fields.'

ʔɔ ɟiw-an gila hakkuⁿdɛ naaⁿgɛ waraay
he leave-INCOMPL since middle sun come-N.COMPL
'He'll leave before noon.'

There is a particular use of the conjunction **ʔila** with negative verb forms. The adverbial phrase **ʔila ⁿdiyam naataay** 'before the water enters' literally means "since the water has not yet entered". Likewise the adverbial clause **gila hakkuⁿdɛ naaⁿgɛ waraay** describes the last moments when the midday sun has not (yet) arrived, so before midday.

kammari 'because, because of, due to'

ʔɔ	**seed-i**	**ʔe**	**goriikɔ**	**kammari**	**ʔɔn**	**fii**	**mɔ**
she	separate-R.COMPL	with	her husband	due to	that one	beat-COMPL	her

'She has left her husband because he has beaten her.'

There is only a small difference between the conjunctions **sabi** 'because' and **kammari** 'because'. The word **sabi** is much more frequently used. The word **kammari** 'because, due to' introduces clauses which describe more serious, uncorrectable reasons.

nɔ 'like'

nɔ	**yimɓɛ**	**hɛɛwɓɛ,**	**ʔɔ**	**ɟiw-i**	**wurɔ**	**maɓɓɛ**
like	people	many	he	leave-R.COMPL	village	their

'Like many people, he has left his village.'

The word **nɔ** can function both as an adverb of manner with the meaning 'thus, as, like', and as a conjunction introducing a clause describing a manner. This shows that in Fulfulde the difference between an adverb and a conjunction is not very large.

kaa 'but'

ʔɔ	**sɛll-aa**	**kaa**	**ʔɔmɔ**	**gɔll-a**
he	be healthy-NEG	but	he+LOC	work-SUB

'He is not healthy but he works.'

The conjunction **kaa** 'but' introduces an adverbial clause which describes a contradiction between the event expressed by the verb in the relative clause and the event described in the main clause. The same word **kaa** 'however' can also be found as a topic marker, which shows that in Fulfulde the distinction between topic markers and conjunctions is small. The topic markers are discussed in the next section.

5.6.7 TOPIC MARKERS

Topic markers occur at the end of a topic phrase on which the rest of the sentence comments. The following topic markers occur in the Fulfulde of Maasina.

kam	'concerning'
nee	'concerning'
duu	'also, too'
kaa	'however, at least, on the other hand'
fuu	'all'
nii	'thus, only thus'
tan	'only'

Chapter six
The nominal grade system

6.1 THE SEMANTIC BASIS OF THE GRADE SYSTEM

The majority of nominals are characterized by the occurrence of a class marker. The nouns are marked by a noun class suffix that categorizes the word, indicating which class it will use as its concord. All other nominals are marked by a concord suffix of the same class as the noun which they modify or refer to. All twenty-two noun classes in the Fulfulde of Maasina can be marked by several possible suffix forms referred to as grades.

In the literature the suffix grades correspond roughly to the division of the suffix forms according to their initial segment which can be a vowel, a continuant, a plosive or a prenasalized consonant (McIntosh 1984:36). This is not a strict division. There are some exceptional suffix forms which are grouped differently, for example, those suffixes that have an affricate initial suffix are grouped with the continuant initial suffix grade. The grouping does not seem to be based on the nature of the initial consonant, but rather on the co-occurrence of a number of suffix forms in the same (nominal) paradigm. The following examples show four nominal paradigms. Each of these paradigms consists of a singular, plural, diminutive, and augmentative form of a noun. Each of these paradigms combines with suffixes of one grade. Each of the four nouns is taken from a different suffix grade.

Nominal paradigms:

grade:	A	B	C	D
	'story'	'chief'	'recipient'	'dog'
basic gender:	NGOL/'DI	'O/'BE	NDE/'DE	NDU/'DI
sg.	**taal-ol**	**hɔɔ-rɛɛ-jɔ**	**tum^{m}b-u-dɛ**	**raw-aa-^{n}du**
pl.	**taal-i**	**hɔɔ-rɛɛ-ɓɛ**	**tum^{m}b-u-ɗɛ**	**daw-aa-ɗi**
NGEL: dim.	**taal-el**	**hoo-re-wel**	**tum^{m}b-u-gel**	**daw-a-^{n}gel**
KOY: dim.pl.	**taal-oy**	**hoo-re-woy**	**tum^{m}b-u-koy**	**^{n}daw-a-koy**
NGAL: augm.	**taal-al**	**hɔɔ-rɛ-wal**	**tum^{m}b-u-gal**	**daw-a-^{n}gal**
'DE: augm.pl.	**taal-ɛ**			**daw-aa-ɗɛ**

The structure of these nouns is similar. They are based on a root, nominal or verbal, and a final element which is the class marker. What distinguishes the different nominal paradigms is the number and type of morphemes that occur between the root and the class marker. The general structure of the noun in Fulfulde is given in the following formula.

[[stem] - [(grade marker) - class marker]]
suffix
noun

The morphemes which occur in the stem can differ. There is a correlation between the type of markers occurring in the stem and the grade of the class suffix.

Grade A nouns:

$$\left[\left[\text{Root}_{\text{V/N}}\right]_{\text{stem}} \text{ - class marker}\right]_{\text{nominal}}$$

Grade B nouns:

$$\left[\left[\text{full word}_{\text{V/N}}\right]_{\text{stem}} \text{ - grade marker - class marker}\right]_{\text{nominal}}$$

Grade C nouns:

$$\left[\left[\text{Root}_{\text{V}} \text{ - (EXT: } \textbf{ir}\text{) (Voice)}\right]_{\text{stem}} \text{ - grade marker - class marker}\right]_{\text{nominal}}$$

Grade D nouns:

$$\left[\left[\text{Root}_{\text{V}} \text{ - (EXT) - (Voice/Aspect) - (PAST)}\right]_{\text{stem}} \text{ - grade marker - class marker}\right]_{\text{nominal}}$$

In the table below, the regular suffix forms of all the classes that occur in Maasina are given. Some additional irregular suffix forms have been omitted, they are discussed in section 6.2.5. In the left-most column the labels of the different classes are given. These labels are derived from the form of the subject concord of that class. The second column shows the underlying form of the suffix followed by the postulated proto-Fulfulde form of the suffix if this differs from the underlying form. All suffix forms are derived from this form. The different suffix forms are grouped into grades following the terminology of Arnott, although the distribution of the suffix forms over the different grades differs slightly from that of Arnott, especially the alveolar initial class suffixes (see sections 7.2.2, 7.2.3, and 7.2.4).

Different grade markers condition the suffix forms of grade B, C, and D. Synchronically the presence of the grade marker can not always be demonstrated, but I suggest that this grade marker is present in the underlying structure of grade B, C, and D words. The ignorance about the underlying complex structure of the suffix forms is at the basis of the lexical hypothesis. The phonological conditioning of the different suffix forms is discussed in section 6.2.

6.1.1 THE SEMANTIC EFFECT OF THE DIFFERENT SUFFIX GRADES

> Par la forme du suffixe, le foul indique ... qu'une modification est apportée au sens naturel de la racine ... . La forme du suffixe de classe n'est donc pas indifférente. Nous pensons pouvoir admettre que la forme faible est employée toutes les fois que la simple indication de la classe suffit, et une forme forte lorsque des indications complémentaires sont nécessaires. Nous ne croyons pas pouvoir attribuer, pour le moment, aux formes fortes, autre chose qu'un rôle d'avertissement, tout en reconnaissant qu'une étude plus approfondie de matériaux plus abondants pourra conduire à plus de précision.
>
> Gaden (1913:39-40)*

Gaden's hypothesis that the different suffix forms express different meanings has long been neglected or denied. Klingenheben (1941:105) rejects the hypothesis that the suffix grades are distinguished on semantic grounds ["begriffliche Gründe"]. He prefers the phonological hypothesis as an explanation for the different suffix forms, although he admits that the conditioning factors for a particular suffix form are not always present. Mohamadou (1985) is the first after a long time to explore some semantic patterns in the groupings of nouns that take a certain suffix form. He describes the nouns on the basis of the meanings of the morphemes that occur in the stem. A word like **yanaa^{n}dɛ** 'grave' is called a resultative passive noun, because of the occurrence of the passive completive marker **-aa-** in the stem (Mohamadou 1985:327). It is true that the meaning of the morphemes that come between the root and the class marker is important for the actual formation of the noun, including the choice of the suffix. Mohamadou's study gives a comprehensive analysis of the meanings of these morphemes and their correlations with the form of the suffixes. But this analysis remains lexical, although the structure of the stem is important for his grouping of suffixes. This includes the grammatical nature of the root: nominal or verbal. Is the stem simple or compound: i.e. does it combine with verbal, or with denominal extensions, or with verbal markers? The most important conclusion that arises from Mohamadou's distribution of the suffix forms is that the type of word formation involved plays an important role in the choice of the suffix form. Mohamadou does show the importance of the semantic content of the morphemes occurring in the stem, but he fails to recognize the semantic content of the suffix forms themselves, which is decisive for the choice between the different suffix forms.

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* In Fulfulde, the form of the suffix indicates ... that a modification is added to the natural meaning of the root. ... The form of the class suffix is therefore not without importance. We think that it is possible to accept that a weak form [grades A and B] is used whenever a simple indication of the class is sufficient, the strong forms [grades C and D] are used whenever additional indications are necessary. At the moment we cannot attribute anything more than a role of some kind of marking to the strong forms, with the recognition that a more profound study of more abundant material could lead to more precision.

Arnott's grade system is taken as the point of departure in the description of the semantic content of the different suffix forms. It will be shown that the grouping of suffixes is not purely lexical. There are semantic similarities underlying the grouping of the suffix forms into grades. In fact, it will be argued that the primary function of the grade system is to be found in the semantic effect of the different suffix grades in the word formation of nouns. Each grade expresses a different relation between the stem and the noun resulting from the combination of a particular suffix form with that stem. The semantic pattern of the suffix grades can be observed when one looks at the different suffix forms in the different derivational processes in the formation of nouns.

My hypothesis is that the choice of the suffix (grade marker and class marker) is determined by the meaning of the suffix (grade marker and class marker). The internal structure of all nominals is given in the following formula.

Internal structure of nominals:

$$\left[\left[\text{stem}\right] - \left[\text{(grade marker) - class marker}\right]_{\text{suffix}}\right]_{\text{noun}}$$

Grade markers are morphemes that carry information on the semantic relation between the root (often verbal) and the meaning of the derived noun. So far, the existence of the grade markers has not been noticed in the literature. The phonological fusion of these morphemes with the stem and with the class marker has made their forms rather opaque. The discovery of the semantically motivated distribution of the nominals over the different suffix grades has lead to the postulation and subsequent discovery of the grade markers. The different meanings expressed by the different grade markers, responsible for the distribution of the nominals over the suffix grades, are represented in the following table.

Semantic content and underlying form of grade markers:

A	B	C	D
objective	associative	circumstantial	subjective
Ø	*ɥ	*r	*n

The sort of meaning expressed in the different suffix grades A, B, C, and D is related to the semantic types of word derivation of the derived nouns. The exact nature of these meanings given in the above schema will be elaborated upon in the following sections. First, the semantic effect of the different suffix forms is discussed in sections 6.1.2 to 6.1.6. Second, the phonological derivation of the different suffix forms which have resulted from fusion of the underlying grade marker with the class marker are discussed in sections 6.2.1 to 6.2.5.

6.1.2 GRADE A: THE OBJECTIVE WORD DERIVATION

The nouns that combine with a suffix of grade A consist only of a nominal or a verbal root, combining with a class marker. This structure is represented in the following schema.

Structure of nouns in grade A:

$$\left[\left[\text{Root}_{\substack{\text{V/N}\\ \text{stem}}}\right] - \text{class marker}\right]$$

The suffixes of grade A can combine with nominal and with verbal stems. Nouns that are based on a stem consisting of only a nominal root always combine with a grade A suffix.

Examples of grade A nouns with a nominal root:

hin-ɛrɛ	'nose'	NDE
wan-ɛ	'black cow'	NGE
ʔɔr-ɔ	'sauce of leaves'	KO
faɗ-ɔ	'sandal'	NGO
lew-ru	'moon, month'	NDU
ful-ɓɛ	'Fulbe'	'BE
ʔaaraab-ɔ	'Arab'	'O
kin-el	'little nose'	NGEL
dut-al	'vulture'	NGAL
laaw-ol	'road'	NGOL
dammul-ol	'kid, lamb'	KOL
bɔs-al	'bit of porridge'	KAL
git-ɛ	'eyes'	'DE
nood-i	'crocodiles'	'DI
laan-a	'boat'	KA
mol-u	'foal'	NGU (also concord 'O)
ⁿgɛs-a	'field'	BA
tann-i	'desert date palm'	KI
ⁿgaa-ri	'bull'	NDI
ɲiib-oy	'small elephants'	KOY
kɔs-am	'milk'	'DAM

The table above lists examples from all classes except those from the 'DUM class, which does not contain any true nouns. These nouns derived from nominal roots all describe objects. Object is defined here in its most prototypical meaning: a thing that can be seen and touched. These meanings also confirm the semantic role of grade A as marker of the objective word formation. The word derivation of these nouns, based on nominal roots is represented in the following formula.

Derivation of nouns based on a simple nominal root:

Stem $_N$ + class marker --> Noun
|
"object"

Deverbal nouns also combine with the suffixes of grade A. The derived word describes the object of the verb root, the cognate object or the most typical unmarked object of that verb. This object is mostly the unmarked patient when it is derived from an active verb; the entity to which the action of the verb is directed. The derivation of the nouns based on roots of active verbs is represented in the following formula.

Derivation of grade A nouns based on an active verbal root:

Stem $_V$ + class marker --> Noun
| |
"active" "cognate object of V"

Examples of the word derivation of cognate objects are given in the following table. The infinitive form of the active verb is given as the citation form of the verb. The stem is followed by a hyphen in the examples.

Examples of grade A nouns based on an active verb stem:

active verbs		cognate object		class
tajj-udɛ	'to cut up'	**tay-rɛ**	'part'	NDE
fiß-udɛ	'to tie'	**fim-rɛ**	'knot, wedding'	NDE
hof-udɛ	'to bend'	**how-ru**	'knee'	NDU
waɲ-udɛ	'to hate'	**gaɲ-ɔ**	'enemy'	'O
yaag-aadɛ	'to respect'	**jaag-ɔ**	'loved one'	'O
miil-dɛ	'to think'	**miil-ɔ**	'thought'	NGO
fij-udɛ	'to play'	**fij-ɔ**	'game'	NGO
yim-udɛ	'to sing'	**jim-ol**	'song'	NGOL
taal-aadɛ	'to tell'	**taal-ol**	'story'	NGOL
fellis-iddɛ	'to decide'	**pellis-al**	'decision'	NGAL
hett-udɛ	'to harvest'	**kɛtt-al**	'harvest'	NGAL
goll-udɛ	'to work'	**gɔll-ɛ**	'work'	'DE
haal-dɛ	'to speak'	**haal-a**	'word'	KA
wecc-udɛ	'to change'	**^{m}becc-u**	'change'	NGU
^{ʔ}uj-udɛ	'to castrate'	**^{ʔ}uj-iri**	'castrated bull'	NDI
yar-dɛ	'to drink'	**^{n}jar-am**	'drink'	'DAM

The noun derived with a grade A suffix (consisting only of the class marker) from a verb that expresses an action is semantically the object that is most closely related to that verb. Sometimes this relation is obvious: **taalol** 'a story' is clearly the unmarked object, i.e. the

object most closely related to the meaning of the verb **taalaadɛ** 'to tell'. In the deverbal derivations "object" is taken with its semantic-syntactic meaning: one tells a story, **taalol** 'a story' is the most common, unmarked object of the verb **taalaadɛ** 'to tell'.

Sometimes additional cultural information is needed to explain the relationship between the verb and its cognate or unmarked object. For example the cultural information that bulls are castrated, not rams and he-goats, should explain the fact that the unmarked object of the verb **ʔujudɛ** 'to castrate' is **ʔujiri** 'castrated bull'. In the literature on the Fulbe there is no mention of the fact that rams and he-goats are castrated. The additional cultural information that a wedding is seen as a bond between two families, could explain the close relation of **fimrɛ** translated as 'knot' and 'wedding' with the verb **fiɓudɛ** 'to tie'.

When the related verb is stative, the word derived in this way expresses the cognate state. The nouns derived with a grade A suffix from the verbs that express a state or process express the result or the state most closely related to the meaning of that verb. The derivation of the nouns based on roots of stative verbs is represented in the following formula.

Derivation of grade A nouns based on a stative verbal root:

Root V + (extension) + (voice) + class marker --> Noun
| |
"stative" "cognate state of V"

Examples of nouns that express the "cognate state" of a verb are given in the following table. A difference is made between a cognate object and a cognate state. A cognate object describes a thing that is the cognate object of a verb. A cognate state describes a state resulting from the inherent action of the verb itself. Again, some nouns are semantically transparent, others have an interpretation which is culture-specific.

Examples of grade A nouns based on a stative verbal root:

inchoative verbs		cognate state		class
heyɗ-udɛ	'to be(come) starving'	**hɛyɗ-ɛrɛ**	'famine'	NDE
yolb-udɛ	'to be(come) hungry'	**yɔlb-ɛrɛ**	'hunger'	NDE
sɛy-aadɛ	'to be(come) happy'	**sɛy-ɔ**	'joy'	NGO
toɓ-udɛ	'to (start to) rain'	**tɔɓ-ɔ**	'rain'	NGO
ʔegg-udɛ	'to migrate'	**ʔegg-uru**	'migration'	NDU
ɓuuɓ-udɛ	'to be(come) cold'	**ɓuuɓ-ol**	'cold'	NGOL
hul-dɛ	'to fear, be(come) afraid'	**kul-ol**	'fear'	NGOL
ʔanⁿd-udɛ	'to (come to) know'	**ʔanⁿd-al**	'knowledge'	NGAL
muŋ-udɛ	'to be(come) patient'	**muŋ-al**	'patience'	NGAL
saah-aadɛ	'to be(come) educated, polite'	**caah-u**	'politeness'	NGU
ɓeeɓ-udɛ	'to run dry'	**ɓeem-ri**	'low tide'	NDI
ʔil-dɛ	'to run, rise (of water)'	**ʔil-am**	'flood'	'DAM

The word **hɛyɗɛrɛ** 'famine, starvation' is clearly the state most closely related to the meaning of the verb **heyɗudɛ** 'to starve (with hunger)'. Additional cultural information is

needed to explain words like **ɓeemri** translated here as 'low tide'. The word **ɓeemri** refers actually to the state and the period when the flooding of the river in the Inner Niger-Delta disappears, the flooded land dries up, the water of the river dries up. The word **ɓeemri** is therefore the cognate state related to the intransitive stative verb **ɓeeɓudɛ** 'to dry (up), to be dry'. Likewise **ʔilam** 'the flood' refers to the flooding of the Inner Delta by the River Niger, when the river is high from the water coming from upstream and it is thus the state most closely related to the meaning of the verb **ʔildɛ** 'to run, rise (of water), to flood'.

There are many more examples of the objective word derivation. They are discussed in the sections on the separate classes. The objective word formation expresses the most general semantic derivation.

The suffixes of Grade A are often vowel initial. The form results from phonological rules that operate when the underlying forms of the class marker combine with a consonant final stem. All simple roots in Fulfulde are consonant final. The form of the grade A suffixes are further discussed in section 6.2.1 on the phonological conditioning and in the discussion of the individual classes in chapter 7.

6.1.3 GRADE B : THE ASSOCIATIVE WORD DERIVATION

The associative word derivation accounts for a resemblance or an association between the noun occurring in the stem and the word derived from such a stem with a class suffix of grade B. A suffix of grade B is composed of the grade marker ***ɥ** and the class marker.

The main characteristic of stems that combine with a suffix form of grade B is that these stems are already full nouns themselves. The stem can be either a Fulfulde noun, consisting minimally of a root and a class suffix, or it can be a noun from a foreign language that is in this way integrated into Fulfulde.

The noun that results from the associative word derivation expresses an object which resembles the entity that is expressed in the stem in some way. The resemblance lies in the association with a feature of the stem. The association is with a feature, not with the whole meaning of the stem. The noun formed with a suffix of grade B indicates an entity that shows this resemblance. Suffixes of grade B indicate an association with a feature of the meaning expressed in the noun which forms the stem. The associative word derivation is represented in the following formula.

[Noun $_{stem}$] + grade B marker + class marker --> Noun
|
"thing associated with feature of N in stem"

The meaning of the nouns formed with a suffix of Grade B is further defined by the semantic limitations of the things that are generally denoted by their class markers, i.e. the categorial meaning of the class marker as such. A combination of a Fulfulde noun stem or a loan-word stem with the associative derivational suffix results in the following paraphrase: "thing of class X associated with the thing expressed in the stem".

Examples of grade B nouns based on Fulfulde nouns:

Fulfulde noun		derived grade B noun	
ⁿgay-ka	'hole'	**ⁿgaykaa-rɛ**	'hole'
ɗiɗ-i	'two'	**ɗiɗii-wɛ**	'2 year old cow'
mulg-ɔ	'toothless person'	**mulgɔɔ-wɛ**	'cow without horns'
ʔafɔ	'name for first son'	**ʔafɔɔ-jɔ**	'first son'
hɔɔ-rɛ	'head'	**hɔɔrɛɛ-jɔ**	'chief, president'
ᵐbaal-u	'sheep'	**ᵐbaaluᵐbaalu-wal**	'amble'
haak-ɔ	'foliage'	**haako-wol**	'leaf'
ʔɔr-ɔ	'foliage for sauce'	**ʔoroo-wi**	'baobab'
gɔr-ɔ	'colanut'	**ⁿgoroo-wi**	'colanut tree'
maaⁿgɔr-ɔ	'mango'	**maaⁿgoroo-wi**	'mango tree'
taam-u	'silk-cotton, kapok'	**taamuu-wi**	'kapok tree'
gɛl-lɛ	'villages'	**ⁿgellee-wi**	'doum palm'

Again, some derivations are obvious, others need additional cultural information to show that this semantic analysis of the word derivation with a grade B suffix is plausible. A straightforward derivation is the word **hɔɔrɛɛjɔ** 'chief, president' derived from the word **hɔɔrɛ** 'head'. The feature of being the head is taken here metaphorically. The semantic association "head" : "leader" is a common cross-linguistic pattern. The **hɔɔrɛɛjɔ** is "an entity of the 'O class associated with a feature of the head". This paraphrase equals the following paraphrase: a **hɔɔrɛɛjɔ** is "a person that is associated with the feature of being at the head (of a group)". Another example is the word **mulgɔɔwɛ** 'cow without horns'. The fact that this word describes a cow is indicated by the choice of a suffix of the NGE class which classifies cows. This cow without horns is clearly associated with a feature of the word **mulgɔ** 'toothless person'. The shared feature is the missing of hard and sharp things that could be used for aggression, which are teeth in the case of a person and horns in the case of this cow. This image is associative and metaphorical, cf. **mulgɛ** 'cow without teeth'.

Additional cultural information is needed for the semantic interpretation of the word **ʔoroowi** 'baobab', derived from the word **ʔɔrɔ** 'foliage for sauce, sauce made of leaves'. The word **ʔɔrɔ** is a loan-word from Dogon where it has the meaning 'baobab tree'. It is fully integrated into Fulfulde because the last vowel [ɔ] is interpreted as the class marker of the KO class, denoting collectives, hence **ʔɔrɔ kɔ** 'the baobab foliage'. It is possible that the loan-word got the meaning of 'foliage or sauce' in Maasina because this tree cannot grow in the flooding zone, so the tree is absent but its leaves are introduced through trade with the Dogon (Van Dijk, personal communication). The baobab is a tree whose leaves are put into a type of sauce by the Fulbe. The paraphrase of the word **ʔoroowi** is "a thing of the KI class that is associated with the foliage used in the sauce or with the sauce of leaves". The KI class classifies trees, so the paraphrase is: "tree associated with the sauce of leaves". This association is clearer in the Fulfulde spoken in Burkina Faso, where the name of the baobab is **ʔoroowi** when it is covered with leaves and **ɓokki** when it is bare (Issa Diallo, personal communication).

The association of **ⁿgelleewi** 'the doum palm' with **gɛllɛ** 'villages' could be explained by the fact that the Fulbe consider this tree to be very useful for the construction of villages. Its

branches and stems are used as construction wood for houses. Its leaves are used to weave mats, covers, and in the construction of fences. Thus the doum palm is the tree of the villages, the associated feature is the use of the doum palm as construction material for settlements.

The associative word formation is also used for the integration of loan-words into the Fulfulde class system. When a loan-word enters the Fulfulde language, it does not necessarily combine with a class marker. Loan-words without a class marker will always use the concord of the 'O class. If the loan-word is integrated into the language it combines with a class suffix that is appropriate for its meaning. This class suffix can be formed by the reanalysis of the last syllable of the loan-word when the rhyme of this last syllable resembles a grade A suffix. If this is not possible, the suffix will take a grade B suffix. Grade B is a very typical grade for loan-words (Tioulenta 1991).

foreign word			object resembling		class
Sorogo	**kumbe**	'paddle'	**hum^{m}bɛɛ-wɔ**	'paddle'	NGO
			kum^{m}bɛɛ-jɛ	'paddles'	'DE
Soninke	**funɛ**	'twins'	**funɛɛ-jɔ**	'twin'	'O
			funɛɛ-ɓɛ	'twins'	'BE
Soninke	**taanɛ**	'anvil'	**taanɛɛ-rɛ**	'anvil'	NDE
Tamashek	**gargasa**	'leather'	**gargasaa-jɔ**	'leather worker'	'O
Arabic	**jinn**	'spirit'	**jinnaa-ru**	'spirit'	NDU
			jinnaa-ji	'spirit'	'DI
Bambara	**kogo**	'wall'	**koko-wol**	'wall'	NGOL
			kokoo-ji	'walls'	'DI
Bambara	**kalikali**	'stairs'	**kalikali-wal**	'stairs'	NGAL
French	**soulier**	'shoe'	**sulɛɛ-wɔ**	'shoe'	NGO
French	**coupecoupe**	'machete'	**kupukupuu-wi**	'machete'	KI
French	**pot**	'saucepan'	**fotii-rɛ**	'saucepan'	NDE
			potii-jɛ	'saucepans'	'DE

A remarkable feature of stems in the associative word formation is that they often do not change their initial consonant as other nouns do. There are, however, exceptions. There are a few adjectives that are formed with the associative word derivation, which follow the initial consonant alternation that is determined by the final class suffix. These are the so-called "adjectives ending in **-ee-**" (Arnott 1970a:393).

'red'	'white'	'black'	'old'	class
bɔɗɛɛ-jɔ	**danɛɛ-jɔ**	**ɓalɛɛ-jɔ**	**nayɛɛ-jɔ**	'O
^{m}boɗee-wi	**^{n}danee-wi**	**ɓalee-wi**	**nayee-wi**	KI
wɔɗɛɛ-wɔ	**ranɛɛ-wɔ**	**ɓalɛɛ-wɔ**	**nayɛɛ-wɔ**	NGO

These adjectives are discussed in more detail in sections 8.1.2 and 8.1.3. Here it is only stated that there is clear semantic and etymological evidence that these adjectives are derived from full nouns that name cows. These adjectives take a suffix of grade B to indicate this type of meaning of the associative word formation. These adjectives also reflect something of

the importance of cows in the description of the world encoded in Fulfulde, in particular of the colours.

The agentive noun also makes use of the associative word formation. The stem is proposed to be based on a nominal stem formed with the suffix -ɔɔ- derived from the 'O class and the associative grade marker *ɥ. The 'O class denotes persons. The meaning of "person" is taken as the marker for the agentive. The meaning of "person" and "agent" are nicely related. A person can be seen as the prototypical agent.

nagg-ɛ witt-ɔɔ-wɛ	'cow that is leaving'	NGE
laan-a witt-ɔɔ-wa	'a boat that is leaving'	KA
laanaa-ji bitt-oo-ji	'boats that are leaving'	'DI
doo^{m}b-uru witt-oo-ru	'a mouse that is leaving'	NDU

It is only in the 'O class that the suffix of the agentive deviates from the suffix that usually marks the associative word formation. This might be because of the double occurrence of the same class suffix. The morpheme -ɔɔ- marking the agentive is derived from the 'O class. When the agentive noun refers to a person, the concordial class suffix will also come from the 'O class.

nɛɗɗ-ɔ bitt-ɔɔ-wɔ	'a person that is leaving'	'O
not: ^{x}**bitt-ɔɔ-jɔ**		

Agentive nouns which occur in a class different from the 'O class compare the thing referred to by the concord marker to the prototypical meaning "agent" of a person. The association of the agent with the meaning of "person" as prototypical agent expressed in the morpheme -ɔɔ- in the stem determines the choice of the associative formation marked by a suffix of grade B.

6.1.4 GRADE C: THE CIRCUMSTANTIAL WORD DERIVATION

The general meaning expressed by the circumstantial word derivation is how something is used or how something is done. All nouns derived using a grade C suffix are deverbal nouns. The relation between the meaning of the verb stem and the meaning of the word derived from that verb stem is that such nouns denote circumstances of the event described. This includes words expressing a "manner" or an "instrument" or a "location".

The meanings derived with a grade C suffix are diverse, "purpose" is a recurrent meaning expressed in a number of grade C nouns. First, a list of nouns denoting places and instruments is given. This meaning of the derivation occurs in all classes. In a number of classes the grade C suffix has, besides this locative and instrumental meaning, another additional particular meaning. These class specific additional meanings are also discussed here. The word formation of the places and instruments derived with a grade C suffix is given in the following schema.

Formula for the circumstantial word formation of locatives and instruments:

$$\left[\left[\text{Root}_V \text{ - (EXT: } \textbf{ir}\text{) (Voice)}_{\text{stem}}\right] \text{ - grade marker - class marker}\right] \text{ --> Noun}$$

"place/object used for V"

The extension that is often present in this word formation is **-ir-**, the circumstantial extension, in combination with the middle voice marker. The fused form **-ɔr-** (resulting from **-ir-** and the middle voice marker **-ɔ-**) appears between the verb root and the suffix. The circumstantial extension **-ir-**, in combination with the active voice marker, results in the fused form **-ru-** appearing between the verb root and the suffix. The ***r** of the circumstantial extension is thought to have conditioned the form of the grade C suffixes. The hypothesis of the historical conditioning of the suffix forms in the circumstantial word derivation is discussed in section 6.2.3. A number of examples show that the phonological conditioning factor, i.e. the ***r** of the circumstantial extension, does not need to be present in the surface form to condition a grade C suffix. The meaning indicating circumstances of the verb is now independently present in the grade C suffixes themselves.

Examples of instruments:

rem-ir-gɔ	'agricultural tool'	**rem-u-dɛ**	'to cultivate'
jaaɓ-ir-gal	'treadle, pedal'	**yaaɓ-u-dɛ**	'to tread'
jaŋⁿg-ir-gel	'reading slate'	**jaŋⁿg-u-dɛ**	'to learn, read'
binⁿd-ir-gol	'writing feather'	**winⁿd-u-dɛ**	'to write'
laɓ-or-ki	'razor'	**laɓ-u-dɛ**	'to shave'
siiw-r-u-dɛ	'cast'	**siiw-dɛ**	'to pour'
tumᵐb-u-dɛ	'recipient'	**tumᵐb-u-dɛ**	'to put in'
fɛɗ-ɔɔ-dɛ	'button'	**feɗ-u-dɛ**	'to button up'
nuuy-gal	'centre pillar'	**nuuy-dɛ**	'to support'

The instruments which are formed with the circumstantial derivation are always denoted by the purpose for which such an instrument is used. The word **siiwrudɛ** 'cast' can be paraphrased as "an object used in the process of casting" or "an object into which melted metal is poured".

Examples of locatives:

fij-ir-dɛ	'playground'	**fij-u-dɛ**	'to play'
jaŋⁿg-ir-du	'school'	**jaŋⁿg-u-dɛ**	'to teach'
luum-ɔ-r-dɛ	'market place, trading quarters'	**luum-ɔ**	'market'

The locatives formed with the circumstantial derivation refer to the place by describing its purpose. The word **fijirdɛ** 'playground' can be paraphrased as "a place used for playing". Since the locative and the instrumental noun formations all denote some kind of "purpose", this is thought to be the basic meaning of grade C. The meaning component "purpose"

expressed by the forms of the suffixes of the circumstantial word derivation (grade C) allows for a number of particular interpretations when it occurs in the following classes.

class	suffix form	meaning
NDE	**-dɛ**	"to V" (infinitive)
NGOL	**-gol**	"V-ing , action of V, fact of V" (nominal gerund)
NDU	**-du**	"manner of V"
NDI	**-di**	"process of V leading to result of V"
KI	**-ki**	"having the quality of V"
KA	**-ka**	"manifestation of V"

The circumstantial form **-dɛ** of the suffix in the NDE class can be used very productively. Added to the verbal stem the grade C suffix **-dɛ** marks a verbal noun whose closest translation equivalent in English is the infinitive "to V".

winⁿd-u-dɛ	'to write'
dur-dɛ	'to herd'
yaa-dɛ	'to go'
war-t-u-dɛ	'to come back'

The verbo-nominal infinitive form of the verb expresses the action or process denoted by its root but it is not marked for tense or aspect. Only verbal extensions and voice markers can be included in the infinitive form. Semantically it indicates that the action or process is not realized. The infinitive in itself also expresses an intention. Wierzbicka (1988:29) describes this meaning component of intention for the English infinitive with the semantic primitive 'I want'. The use of the infinitive **durɔydɛ** 'to herd elsewhere' in the following sentence shows that infinitives in Fulfulde also express intention.

pullɔ witt-ii dur-ɔy-dɛ
Pullo leave-COMPL herd-ALT-INF
'The Pullo has left (with the intention) to herd cattle elsewhere.'

The fact that the infinitive takes a suffix of the circumstantial derivation is thought to follow from the semantic nature of the infinitive. There seems to be a relation between the general meaning "purpose" of grade C suffixes and the meaning of "intention" found in the infinitive formed with the grade C suffix **-dɛ**.

The grade C suffix **-gol** in the NGOL class marks what could be called "the action noun", because the informants often translated these verbal nouns ending in **-gol** into French with a paraphrase using the words "l'action de V, le fait de V'. The closest translation of the words formed with the grade C suffix **-gol** in English seems to be the nominal gerund "V-ing".

winⁿd-u-gol	'writing, act of writing'
dur-gol	'herding, action of pasturing'
yaa-gol	'going, action of going'
wartu-gol	'returning, action of coming back'

The action noun marker **-gol** is similar to the infinitive in that it describes the action or process of the verb, without any specification about an actual realization. The exact meaning of this action noun is, however, difficult to describe. These nouns seem to refer to a "stretch of time", which is also a meaning component of the English gerund (Wierzbicka 1988:83).

The difference between the meaning of verbal nouns ending in **-gol** as a general occurrence of an action over a stretch of time versus the meaning of the verbal nouns ending in **-dɛ** as a single envisaged event, a single occurrence of an action might lie in the difference between the actual meaning of the NDE and NGOL class. The NDE class denotes circular objects, and also limited periods of time. The NGOL class denotes long flexible things, some words in this class indicate unlimited continuation e.g. **jaaɲelol** 'clan, family' which is not so much the clan as such, but the ongoing line between ancestors, present family, and future offspring. This unlimited connotation of the NGOL class seems to be due to the fact that the action noun can be interpreted as "the (possible, envisaged) general, continuing, ongoing occurrence of V". This meaning is demonstrated in the use of the noun **durgol** 'herding' in the following sentence.

dur-gol yɔ gɔllɛ fulɓɛ
herd-CL COP work Fulbe
'The herding of cattle is the work of the Fulbe.'

Further research into the use of these verbal nouns is needed to find a more precise semantic description of the verbal nouns ending in the grade C suffix **-gol**. Both "to V" and "V-ing" forms refer to intentional action (Wierzbicka 1988:73). Wood (1956:14) cited by Wierzbicka suggests that the gerund is more used to express the general purpose for which something exists or which it is intended to serve. The infinitive is more typically used to express a particular purpose which one hopes to achieve or which one has in view. The general meaning of "purpose (related to V)" expressed by the locative and instruments formed with a grade C suffix might indicate that a similar intention is being expressed by these Fulfulde nouns translated with the infinitive and the nominal gerund. The intentional meaning of these verbal nouns is thought to be the semantic motivation for the grade C suffix.

The verbal nouns that are formed with the grade C suffix **-du** of the NDU class express the meaning "manner of". Manner describes the way in which the event denoted by the related verb is performed. Thus it describes a circumstance of the event described by the verb from which the noun describing manner is derived. This circumstantial meaning is the reason for the choice for a suffix from grade C.

dog-u-dɛ	'to run'	**dod-du**	'manner of running; course'
yaa-dɛ	'to go, walk'	**yaa-du**	'manner of walking; journey'
ɲaam-u-dɛ	'to eat'	**ɲaam^{n}du**	'manner of eating; food'

The above words have, through semantic shift, also obtained other, more specific meanings. This formation can also occur with only its meaning "manner of".

jal-dɛ	'to laugh'	**jal-du**	'manner of laughing'
miil-dɛ	'to think'	**miil-du**	'manner of thinking'

A number of verbal nouns formed with the grade C suffix **-di** in grade C express the meaning referring to both the process and the result of the action or process expressed by the related verb. It's meaning is represented in the following schema.

V + **-di** --> Noun
|
"process of V leading to result of V"

Examples of process/results:

nee-di	'education'	**neh-u-dɛ**	'to educate'
ᵐball-u-di	'help'	**wall-u-dɛ**	'to help'
ⁿjob-di	'wages'	**yoɓ-u-dɛ**	'to pay'
ɓuud-di	'swelling'	**ɓuut-u-dɛ**	'to swell'

More examples can be found in section 7.2.3.3 on the NDI class. Some semantic similarity can be found between the manner in which these actions are performed and the product or result of these verbs. The word **needi** 'education', derived from the verb **nehudɛ** 'to educate', expresses the process of educating and the result: you can say of a person that he has **needi**, implying that he is a well educated person. Likewise the word **ᵐballudi** 'help' derived from the verb **wallude** 'to help' describes the action of helping as well as the help resulting from that action.

The fact that these verbal nouns denote a result, a product, is thought to be a connotation of the NDI class itself. The possible semantic motivation for the fact that these nouns take a suffix of grade C is that they imply intention. The intentional meaning of these nouns is found in the relation between the action and the result of the related verb.

The particular meanings of nouns that take a grade C suffix described above do not give one invariant meaning of grade C nouns, but all the meanings seem related. The nouns derived with a suffix of grade C all describe circumstances of the verb, these circumstances can refer to the purpose, the intention, or the manner of the verb from which these nouns are derived.

The class markers which start with a voiced consonant in their underlying form have a form which is clearly distinct from the grade C suffixes. Class markers whose underlying initial consonant is a voiceless consonant or a glottal stop cannot distinguish the form of grade C from the form of grade D. The following suffix forms seem to be different in meaning from the grade D suffixes. The question is whether this difference in meaning is sufficient evidence to state that they belong to grade C.

The suffix **-ki** is the regular marker of the infinitive in the Fulfulde of Gombe, equivalent to the verbal noun marker **-dɛ** in Maasina. In Maasina, however, only a few verbal nouns combine with the suffix **-ki** of the circumstantial word derivation. The suffix **-ki** of the circumstantial word derivation has the same form as the suffix **-ki** of the subjective word derivation (grade D). Here it is only the meaning of the suffixes that indicates a difference between the two suffix forms.

paaŋ-ki, paakki, pakki	'narrowness'	**faaɗ-u-dɛ**	'to be narrow'
kem-ki, kekki	'greed'	**heɓ-u-dɛ**	'to obtain'
ⁿjuuŋ-ki, ⁿjuuk-ki, ⁿjukki	'length'	**juut-u-dɛ**	'to be long'

The meaning of the suffix **-ki** of the circumstantial derivation is proposed to be "property denoted by V". The words refer to properties such as length, narrowness, and greed. These words cannot be interpreted as subjective derivations: **ⁿjuukki** 'length' is not necessarily long, so it cannot be paraphrased as "that which is long". More research into the meanings of these words is needed to explain why the choice of a grade C suffix would be the most obvious choice for the nouns expressing the property denoted by these stative verbs. Perhaps there is a link with the meaning "manner" in so far as greed describes the way in which someone is greedy and length describes how long something is. These quality nouns describe a manner of being, a dimension.

The KA class contains a number of words derived with the suffix **-ka** with the specific meaning "manifestation of".

ᵐbɔɔwka, ⁿgɔɔw-ka	'habit'	**wɔɔw-dɛ**	'to be used to'
ⁿgay-ka	'hole'	**ʔas-udɛ**	'to dig'
kɔɔr-ka	'fast'	**hɔɔr-dɛ**	'to fast'
ⁿguy-ka	'theft'	**wuj-j-udɛ**	'to steal'
ɗɔm-ka, ɗɔŋ-ka	'thirst'	**ɗɔm-ɗ-udɛ**	'to be thirsty'

It is again the semantics of the derived words that indicate that there is a suffix **-ka** of the circumstantial word derivation that differs from the suffix **-ka** in the subjective word derivation. A semantic link between the specific meaning "manner" of the grade C suffix **-du** and the specific meaning "manifestation of V" of the grade C suffix **-ka** seems plausible. A manifestation is an action that shows something clearly; manner is the way in which something is done or happens. The word **kɔɔrka** 'fast' describes an action that shows clearly the way in which fasting (**hɔɔrdɛ** 'to fast') is done. The hypothesis is that the word derivations with the suffix **-ka** express the manifestation of the manner of the related verb stems.

To conclude, the specific meanings of the different class suffixes in the circumstantial word derivation are summarized in the following list.

class suffix	*meaning*	*circumstantial meaning component*
all classes	"entity (place/object) used for V-ing"	purpose
-dɛ	"to V" (infinitive)	intention
-gol	"V-ing"	intention
-du	"manner of V"	manner
-di	"process of V leading to result of V"	purpose, intention
-ki	"property denoted by V"	manner
-ka	"manifestation of V"	manner

These meanings are the sum of the semantics expressed by the different class markers in combination with the circumstantial meaning expressing "purpose, intention and manner".

6.1.5 GRADE D: THE SUBJECTIVE WORD DERIVATION

The suffix forms that occur in a subjective word derivation are identical in form to the subject pronouns, except for the suffix form **-ɓɓɔ** of the 'O class that differs from the concord pronoun **ʔɔ** in most Fulfulde dialects. In Maasina the subject concord of the 'O class is actually **mɔ**. It is not unusual to have several pronominal forms for the class representing the human third person singular. The prenasalized suffix of the subjective derivation is in all other classes identical to the subject concord, the prenasalization is omitted before the laryngealized and voiceless consonants {**ɓɓ ɓ k**}.

The nouns that are formed with a suffix of the subjective derivation show a large similarity in form and meaning with the participles (see section 8.1.5). Participles are formed by combining a verb stem with a grade D suffix. They always denote the subject of the verb from which they are derived. Likewise all nouns that are derived with the subjective word derivation denote the subject of the verb from which these nouns are derived. The hypothesis is that historically these nouns were participles. The meaning of the nouns in the subjective word formation has become more specific, and the existence of a related verb cannot always be demonstrated. As a result, the grade D suffix of the petrified participles functions as a true classifying marker, whereas the grade D suffix of the productive participles functions as a concord referring to the noun that it modifies. The structure of productive and petrified participles is identical.

Grade D nouns:

$$\left[\left[\text{Root}_V \text{ - (EXT) - (Voice/Aspect) - (PAST)}\right]_{\text{stem}} \text{ - grade marker - class marker}\right]$$

After the verb root, a number of verbal markers can occur. These verbal markers indicate aspect (completive or incompletive) and voice (active, middle or passive). The main difference is that in productive participles the suffix is a subject concord referring to the word that the participle modifies. The suffix of the other nouns in the subjective word derivation does not function as a concord. The noun has become an independent noun, the suffix is functioning as class marker only. It has got a more specific meaning than the original paraphrase of the participle. The semantic specification is sometimes obvious, often additional culture specific information is necessary to explain the derivation.

noun in subjective word derivation		related verb stem	
juul-ɓɓɔ	'Muslim: who has prayed'	**juul-**	'pray'
bar-ɓɓɔ	'murderer: who has killed'	**war-**	'kill'
waa-ⁿdu	'monkey: that resembles'	**wah-**	'resemble'
ɓaa-ⁿdi	'carrying bull: that is docile'	**ɓaat-**	'be docile'
ɓɛy-ⁿgɛ	'milk cow: that has given birth'	**ɓɛyn-**	'give birth'
juŋ-ⁿgɔ	'arm, hand: that is long'	**juut-**	'be long'
kaddu-ⁿgal	'cloth: that is wrapped'	**hadd-**	'wrap, dress'

noun in subjective word derivation		related verb stem	
ⁿgil-ⁿgu	'worm: that disappears'	**yil-**	'disappear'
daa-ⁿgol	'rope that ties calves down'	**radʼ-**	'tie calves'
ɓir-aa-dʼam	'fresh milk: being milked'	**ɓir-**	'milk'
hunu-kɔ	'mouth: that encircles'	**hunⁿd-**	'encircle'
hunⁿdu-kɔ	id.		

Sometimes the related verb cannot be found. The hypothesis is that these verbs have disappeared, or that the relation with the verb is no longer obvious because of an accumulation of semantic shifts. The morphological structure of nouns in the subjective word derivation is so similar to that of participles, hence all of them are considered to be derived from a participle.

6.1.6 THE SEMANTIC HYPOTHESIS

The semantic hypothesis that has been arrived at so far states that each grade has a specific semantic meaning. Grade A suffixes express the notion "object", they are used in the objective word derivation. Words derived with the objective word derivation denote either "objects", i.e. "things" when derived from nominal stems, or "the cognate object", i.e. "the unmarked object" when derived from action or process verbs, or "the cognate state" when derived from stative or inchoative verbs.

The Grade B suffixes express a notion of "association, resemblance", and they are used in the associative word formation. Words derived from other full nouns with the associative word formation indicate items with a resemblance to or association with a feature of the full word that functions as its stem.

The grade C suffixes express notions that refer to circumstances of the event described by the verb stems from which the words are derived. Words derived with the circumstantial derivation express different meanings, the meaning components "intention, purpose, manner", form the focal senses of the circumstantial meaning.

The grade D suffixes express the notion of "subject", and they are used in the subjective word derivation. These words, all derived from verbs, denote the role of the semantic subject of the related verb stem.

The four meanings of the grades combine with the meanings of the class markers. The grade marker and the class marker together form the class suffix. Thus, the meaning of the class suffix has two components: the meaning of the grade marker and the meaning of the individual class. These meanings are always merged in the class suffixes. It is only by comparing the nouns in all grades and the nouns in all twenty-two classes that one can discover these meanings. The application of this methodology led to the present hypothesis on the grade system. All earlier studies of the grade system have been based on the assumption that the different suffix forms did not differ in meaning. This assumption led to a long and unsuccessful search for the formal conditioning of the suffix forms. Adopting a semantic perspective in the present study has helped to provide an explanation for the nature of the different suffix grades. The simple solution is that the different suffix forms, whose forms are not phonologically predictable, differ in meaning. It is therefore possible to find verbal stems which combine with the suffixes of all grades, as shown in the following examples. Additional markers intervene between the root and the class marker.

Examples of the same root with different grades:

mɔɗ-	'swallow'
A: **mɔɗ-ɛrɛ**	'which can be swallowed in one time; pill' (NDE class)
B: **mɔɗ-ɔɔ-rɛ**	'which swallows' (agentive NDE class)
C: **moɗ-u-dɛ**	'to swallow' (infinitive NDE class)
D: **moɗ-u-ⁿdɛ**	'which has swallowed' (participle NDE class)
laɓ-	'shave'
A: **lam-ru**	'shaving of child during naming ceremony; that ceremony' (NDU class)
B: **laɓ-oo-ru**	'shaver, who shaves' (agentive NDU class)
C: **laɓ-u-du**	'manner of shaving' (NDU class)
D: **laɓ-etee-ⁿdu**	'which has been shaved' (participle NDU class)
yɔɔr-	'dry'
A: **yɔɔr-ɔ**	'the drought' (NGO class)
C: **yɔɔr-dɛ**	'to dry, to be dry' (infinitive NDE class)
D: **yɔɔr-ⁿgɔ**	'that which is dry' (participle NGO class)
D: **yɔɔr-ⁿdɛ**	'that which is dry' (participle NDE class)
gɔll-	'work'
A: **gɔll-ɛ**	'work' ('DE class)
B: **gɔll-ɔɔ-wɔ**	'worker, who works' (agentive 'O class)
C: **goll-u-dɛ**	'to work' (infinitive NDE class)
D: **goll-u-ɗɔ**	'who has worked' (participle 'O class)
D: **goll-u-ⁿdɛ**	'which has worked' (participle NDE class)
dɔg-	'run'
B: **dog-oo-ru**	'which runs' (agentive NDU class)
C: **dog-u-dɛ**	'to run' (infinitive NDE class)
C: **dod-du**	'course; manner of walking' (NDU class)
D: **dog-u-ⁿdu**	'which has run' (participle NDU class)

6.2 PHONOLOGICAL DERIVATION OF THE SUFFIX FORMS

> Die nasalierte IV. Stufe würde danach erst durch Assimilation an einen nasalen Stammkonsonanten und die III. erst durch Dissimilation gegenüber einem stammhaften r oder l entstanden sein ... . Bei der vokalischen I. Stufe könnte man Elision des vollen Suffixanlautes nach dem konsonantischen Stammauslaut annehmen. Es würde demnach als ursprüngliche, nicht durch irgendwelche Einflüsse veränderte die frikative II. Stufe übrig bleiben. Klingenheben (1941:103-104)*

* The prenasalized fourth grade [D] would, in this view, have emerged from assimilation to a nasal stem final consonant, and the third grade [C] would have emerged from dissimilation to a stem final r or l. Concerning the vowel initial first grade [A], deletion of the full initial consonant of the suffix could be assumed after a consonant final stem. This would leave the second grade [B] with fricative initial consonants as the original and unchanged suffix forms.

The possible phonological conditioning of the different suffix forms has been summarized by Klingenheben in the paragraph cited above. The present thesis affirms Klingenheben's hypothesis concerning the phonological conditioning of the vowel initial suffix forms (grade A) and the plosive initial suffix forms (grade C). The present hypothesis about the prenasalized initial suffix form is quite similar to Klingenheben's hypothesis, with a further specification that the stem final nasal is cognate with the referential pronoun marker ***n** and with the nasal which occurs in the subject concords. A different hypothesis for the form of the continuant initial suffix forms will be given. As can be seen from the table of suffix forms in section 6.1, the continuant initial suffix forms are not considered to be the unchanged underlying forms from which all the other suffix forms can be derived, as Klingenheben suggests. A special set of underlying suffix forms is proposed, from which all other suffix forms are derived. They are sometimes similar in shape to the suffix form of grade B, but not always.

It will also be shown that the different suffix forms are phonologically conditioned by certain derivational markers that precede the class marker. This phonological conditioning can be seen as a historical phonological process that is no longer productive, or it can be regarded as a synchronic process if an underlying structure is allowed in the derivation of the nominal words. The markers preceding the class markers and conditioning their variant forms are called grade markers. On the surface, the grade markers and the class markers have become fused forms which are called the class suffixes. The different suffix forms have developed independent meanings. These meanings motivate which suffix form will occur in a noun. On the surface the phonological shape of the suffix cannot be predicted from the phonological environment in which it occurs.

The similarity in form between the different class suffixes indicates the identical historical source of the different suffixes. Synchronically, the fact that all words show their agreement with the concord of the same class confirms this connection. Historically and in the underlying structure, the suffixes of the different grades contain two morphemes: the grade marker and the class marker as shown in the following schema. The suffixes from the NGOL class are taken to exemplify the composition of the different suffix forms. In principle all twenty-two classes can occur in combination with all grade markers.

	grade marker		*class marker*		*class suffix*
grade A	Ø	+	***wol**	-->	**-ol**
grade B	***ɥ**	+	***wol**	-->	**V-wol**
grade C	***r**	+	***wol**	-->	**(r)-gol**
grade D	***n**	+	***wol**	-->	**-^{n}gol**

In this discussion the classes are grouped according to the consonants that occur initially in the underlying forms of the suffixes as shown in the table below.

***ŋɛɛɲ**	+	*ʔɔ	>	**ŋɛɛɲ-ɔ, ɲɛɛɲ-ɔ**	'member of the group of artisans'
***waag**	+	*ʔi	>	**baag-i**	'cows with white side'
***sɛf**	+	*ʔɛ	>	**cɛf-ɛ**	'herds'

In many words the initial glottal stop leaves a trace. This is described by Klingenheben's "Hamza-Assimilationsgesetz". A final [+continuant] consonant of the stem can be lengthened, when it merges with the glottal stop. When the final consonant of the stem is [+continuant] the long or geminate consonant changes to [-continuant] (see section 3.2.1).

***ful**	+	*ʔɔ	>	**pull-ɔ**	'Fulbe person'
***wuy**	+	*ʔɔ	>	**gujj-ɔ**	'thief'
***saw**	+	*ʔi	>	**cabb-i**	'staffs, sticks'
***naw**	+	*ʔɛ	>	**nabb-ɛ, naw-ɛ**	'ponds, lakes'

The last example shows that the merger of a final [+continuant] with the glottal stop, resulting in a plosive geminate, is not an automatic rule. Some words even show two variants: the plural form **nawɛ** 'ponds' shows no trace, the plural form **nabbɛ** 'ponds' does show influence of the glottal stop: gemination of the stem final consonant. It is not clear which factors influence the choice between these two forms. Sometimes the variants are regionally distributed, sometimes the variants are used by different persons (different ideolects), sometimes both variants are used by the same person (stylistic variation), some differences may vary according to the social group of the speaker (sociolects). A study with a larger number of informants representing different social and regional groupings is needed to explain the distribution of these variants.

If the initial consonant of the underlying form of the suffix is alveolar, then different phonological changes can occur to avoid an ill-formed sequence of two consonants depending on the nature of the stem final consonant. The suffix forms with an initial voiced central alveolar consonant are an exception to the rule that the initial consonant of the suffix is lost after a consonant final stem.

The alveolar trill is allowed to follow consonants that are [+continuant]. So after the continuants {**w**, **y**, **h**} and also after the labial nasal [**m**] the initial consonant of the suffix form remains [**r**], as in the underlying form.

***nɛw**	+	*rɛ	>	**nɛw-rɛ**	'hand palm'
***ⁿgah**	+	*ri	>	**ⁿgaa-ri**	'bull'
***ɗɔy**	+	*ru	>	**ɗoy-ru**	'cough'
***tam**	+	*rɛ	>	**tam-rɛ**	'ball'

In the example **ⁿgaari** 'bull' the underlying stem final [**h**] is omitted because [**h**] cannot occur adjacent to other consonants. The result is a long vowel preceding the suffix initial [**r**]. The phonological changes that prevent ill-formed sequences [consonant] [**r**] are the following:

r --> d / {l, r} __

This rule says that the suffix initial [**r**] will become a plosive [**d**] after stems that end in the liquid consonants [**l**] or [**r**]. It prevents violations of the sonority hierarchy (see section 4.5.1).

***hɔr**	+	***rɛ**	>	**hɔr-dɛ**	'calabash spoon'
***wuul**	+	***ri**	>	**ᵐbuul-di**	'white faced bull'
***ʔɛlɛlɛl**	+	***ru**	>	**ʔelelel-du**	'flat headed lizard'

Another rule for strengthening [**r**] in the syllable onset thus avoiding ill-formed consonant sequences is the following:

r --> ⁿd / n __

After stems that end in a homorganic nasal consonant [**n**] the suffix initial [**r**] will become a prenasalized plosive [**ⁿd**]. The continuant [**r**] becomes plosive after a nasal to prevent an ill-formed sequence of a less sonorant nasal followed by the more sonorant trill.

***sɔn**	+	***ri**	>	**con-ⁿdi**	'flour'
***hɛn**	+	***ru**	>	**hen-ⁿdu**	'wind, spirit'
***haatan**	+	***rɛ**	>	**haatan-ⁿdɛ**	'cooking stone'

The prenasalization of the plosive [**d**] in the above examples to [**ⁿd**] after a nasal is an automatic rule, because an [**nd**] sequence is ill-formed (see section 2.3.3).

If the above rules cannot avoid ill-formed consonant sequences, the following rule will apply.

$rV_i > V_irV_i$ / {C[obstruent], CC} __

When the stem ends in an obstruent or two consonants, the suffix form is preceded by a vowel that is historically epenthetic, which has copied the vowel features from the vowel in the suffix.

***hɔɔd**	+	***rɛ**	>	**hɔɔd-ɛrɛ**	'star'
***talk**	+	***ru**	>	**talk-uru**	'amulet'
***jiiɓ**	+	***ri**	>	**ⁿjiiɓ-iri**	'mixture, paste'

The *-VrV suffix form is now the proto-typical form of the Grade A suffixes, and this vowel initial form can also occur when no epenthesis is strictly necessary. In the following example variation occurs, both suffix forms ***-ɛrɛ** and ***-rɛ** can follow the stem final nasal consonant [**ɲ**] in the stem ***hɛɛɲ** 'liver'. The stem final nasal consonant [**ɲ**] behaves either like the other obstruents combining with a vowel initial suffix, or it alternates with the approximant [**y**] combining with the [**r**] initial suffix form.

***hɛɛɲ**	+	***rɛ**	>	**hɛɛɲ-ɛrɛ, hɛɛy-rɛ**	'liver'

The associative marker [ɥ] merges with a laryngealized consonant [d'] to form a geminate affricate [jj]. This is why the consonant of the associative grade marker is postulated as a palatal. The palatal-labial approximant [ɥ] with spread lips occurs in Maasina as an allophone before the front vowels {ɛ, e, i}.

Paradis (1986:304), describing the Pulaar dialect of Mauritania, also proposes that the suffixes of grade B are compound forms, consisting of what she calls abbreviated forms preceded by the consonant [ɥ]. The precise nature of this underlying consonant is difficult to establish. The present hypothesis is that the underlying consonant of the grade marker has the same underlying form in all Fulfulde dialects. It should have some palatal and bilabial place features, and it should be [+voice] and [+continuant]. The underlying consonant of the associative grade marker is thought to be [–round]. The following phonological change occurs when the initial consonant of the class marker is a glottal stop.

..V-ɥ-ʔ.. > ..VVj..

The suffixes with an initial glottal stop merge with the associative marker to become an affricate consonant [j], identical with the phonological merger that occurs in the verb **wojjudɛ** 'to be(come) red'.

***hɔɔrɛ**	['head']	+	*ɥ	+	*ʔɔ	>	**hɔɔrɛɛ-jɔ**	'chief, president'
***kum^{m}bɛ**	[Srg.]	+	*ɥ	+	*ʔɛ	>	**kum^{m}bɛɛ-jɛ**	'paddles'
***boli**	[Bam.]	+	*ɥ	+	*ʔi	>	**bolii-ji**	'calabash bottles'

In the associative formation, the stem final vowel is lengthened. This long vowel is typical of words formed with a suffix from this grade B. The geminate affricate [jj] is shortened to a single affricate [j] because it is preceded by a long vowel.

The suffixes with an initial alveolar trill [r] remain unchanged because this consonant remains unchanged after approximants.

***sagi**	+	*ɥ	+	*rɛ	>	**sagii-rɛ**	'basket'
***boli**	+	*ɥ	+	*ru	>	**bolii-ru**	'bottle-shaped calabash'

The consonant [ɥ] is deleted and the preceding stem final vowel is lengthened. In Maasina the consonant [ɥ] can only occur syllable initially. The palatal-labial [ɥ] is a weak consonant liable to be assimilated to the preceding vowel when occurring in syllable final position.

The same vowel lengthening occurs before the voiced velar initial suffixes. The hypothesis is that here too, the consonant [ɥ] is deleted and compensatory lengthening of the preceding vowel takes place.

***ɗiɗi**	['two']	+	*ɥ	+	***wɛ**	>	**ɗiɗii-wɛ**	'2 year old cow'
***kumbɛ**	[Srg.]	+	*ɥ	+	***wɔ**	>	**hum^{m}bɛɛ-wɔ**	'paddle'
***^{n}giro**		+	*ɥ	+	***wu**	>	**^{n}giroo-wu**	'pig'
***tɛfɛ**		+	*ɥ	+	***wa**	>	**tɛfɛɛ-wa**	'donkey, she-ass'
***taanɛ**	[Son.]	+	*ɥ	+	***wal**	>	**taanɛ-wal**	'big anvil'
***kɔkɔ**	[Bam.]	+	*ɥ	+	***wol**	>	**koko-wol**	'wall'

The penultimate long vowel in the last two examples is shortened because it precedes a word final heavy syllable (see section 4.2.2). The occurrence of the consonant [**w**] in the surface forms of the suffixes of the associative word formation is due to the complementary distribution of [**ɥ**] occurring before front vowels and [**w**] occurring before the other vowels. This allophonic variation is not given in the examples, but a word like **/ɗiɗiiwɛ/** is phonetically realized as [**ɗiɗiiɥɛ**].

The associative grade marker [**ɥ**] in combination with the consonant [**h**] of the voiceless velar initial suffixes results in the lengthening of the preceding stem final vowel followed by the consonant [**w**] with an allophonic variant [**ɥ**] before front vowels.

***malli**		+	*ɥ	+	***ha**	>	**mallii-wa**	'cover of six strips'
***gɔrɔ**	['cola']	+	*ɥ	+	***hi**	>	**^{n}goroo-wi**	'colanut tree'
***gamara**		+	*ɥ	+	***hɔ**	>	**gamaraa-wɔ**	'grass species'

There are some rhythmic syllabic rules to account for the well-formedness of the correct order of heavy and light syllables (see section 4.2.2). A rhythmic rule explains why the lengthening of the vowel preceding the grade B suffix is again shortened when the following class suffix is a heavy syllable, like the suffixes with the form CVC. The shortening of the penultimate vowel results in a light penultimate syllable. The shortening of the long vowel in the penultimate syllable before a final heavy syllable is not an obligatory rule. This long vowel is not always shortened, as will be shown in the following example involving the associative word formation.

***karkala**	[Bambara]	+	*ɥ	+	***wal**	>	**karkalaa-wal**	'wooden bed'

The adjectives of the associative word formation also show a variation in vowel length before final heavy syllables. This variation clearly shows that the underlying vowel is long, and that it is shortened before a heavy syllable. Arnott (1970a:115) and McIntosh (1984:37), describing Nigerian Fulfulde dialects, state that the phonological vowel lengthening of the stem final vowel before grade B suffixes is conditioned by the suffix initial consonants [**j**] and [**r**]. The distribution in Maasina is clearly different, and has to do with rhythmic restrictions on the sequence of light and heavy syllables. So in Maasina the stem final vowel is lengthened before all grade B suffixes, this applies to the grade B suffix of the 'BE class also.

***hɔɔrɛ**	['head']	+	*ɥ	+	***ɓɛ**	->	**hɔɔrɛɛɓɛ**	'presidents'
***gargasa**	[Tsk.]	+	*ɥ	+	***ɓɛ**	->	**gargasaaɓɛ**	'leather-workers'
***funɛ**	[Son.]	+	*ɥ	+	***ɓɛ**	->	**funɛɛɓɛ**	'twins'

If the variation in vowel length were correctly described as being phonologically conditioned by the suffix initial consonants [j] and [r], then it would be peculiar that all nouns have a long vowel when they combine with the grade B suffix -**ɓɛ** in these Nigerian Fulfulde dialects. The following examples are from the Gombe dialect described by Arnott (1970a:107, 116, 124).

												sg.
***fuk**	+	**ar**	+	**a**	+	**ɥ**	+	**ɓɛ**	->	**fukaraaɓɛ**	'pupils'	**pukaraajɔ**
***rɛm**	+			**ɔ**	+	**ɥ**	+	**ɓɛ**	->	**rɛmɔɔɓɛ**	'farmers'	**dɛmɔɔwɔ**
***sɔɔb**	+			**a**	+	**ɥ**	+	**ɓɛ**	->	**sɔɔbaaɓɛ**	'friends'	**sɔɔbaajɔ**

The distribution of vowel length in the paradigm of the noun **suka** 'youth' (Arnott 1970a:129) — a long vowel before a final light syllable and a short vowel before a final heavy syllable — confirms the view that the rule stated by Arnott and McIntosh needs reconsideration.

***suka**					->	**suka**	'youth'
***suka**	+	***ɥ**	+	***ɓɛ**	->	**sukaaɓɛ**	'youths'
***suka**	+	***ɥ**	+	***wel**	->	**sukayel**	'little youth'

The hypothesis is that in the Nigerian Fulfulde dialects too, compensatory lengthening of the stem final vowel occurs due to the loss of the consonant [ɥ] of the associative marker before all class markers, including the very stable unchanging suffix of the 'BE class.

The associative word formation is historically derived from the associative extension [ɥ] and the underlying form of the suffix. On the surface the associative marker and the class suffix have merged, and the words of the associative word formation are characterized by stem final vowel lengthening. Because the stem is a full noun, either a Fulfulde or a loan-word, its stem is vowel final in most cases. This final vowel is lengthened before a grade B suffix, it can be shortened again before a final heavy syllable. The grade marker [ɥ] is deleted after consonant final stems, e.g. in **tim^{m}bilam-ji** which is the plural of **tim^{m}bil-am** 'sweet porridge' in the 'DAM class (Klingenheben 1963:151).

The suffixes marking the associative word formation (in the Maasina dialect) are given in the following table.

label of class	underlying form	grade B form	
'O	*ɥ-ʔɔ	V-jɔ	
'DI	*ɥ-ʔi	V-ji	
'DE	*ɥ-ʔɛ	V-jɛ	
'DAM	*ɥ-ʔam	V-jam	
'DUM	*ɥ-ʔum	V-jum	
NDU	*ɥ-ru	V-ru	
NDE	*ɥ-rɛ	V-rɛ	
NDI	*ɥ-ri	V-ri	
KI	*ɥ-hi	V-wi	[V-ɥi]
KA	*ɥ-ha	V-wa	
KO	*ɥ-hɔ	V-wɔ	
KAL	*ɥ-hal	V-wal	
KOL	*ɥ-hol	V-wol	
KOY	*ɥ-hoy	V-woy	
NGO	*ɥ-wɔ	V-wɔ	
NGE	*ɥ-wɛ	V-wɛ	[V-ɥɛ]
NGU	*ɥ-wu	V-wu	
NGAL	*ɥ-wal	V-wal	
NGEL	*ɥ-wel	V-wel	[V-ɥel]
NGOL	*ɥ-wol	V-wol	
BA/NGA	*ɥ-wa	V-wa	
'BE	*ɥ-ɓɛ	V-ɓɛ	

6.2.3 GRADE C: PLOSIVE INITIAL SUFFIX FORM

The circumstantial extension ***ir** in the stem has historically conditioned the plosive initial form of the grade C suffixes. The consonant ***r** cannot be followed by a more sonorant consonant, i.e. an approximant. The suffix initial approximants become plosive to prevent a violation of the sonority hierarchy. This hypothesis does not differ much from Klingenheben's claim that the third grade (C) could have emerged from dissimilation to a stem final [**r**] or [**l**].

The circumstantial extension ***ir** can be reduced to **-r-** when the structure conditions on the well-formedness of consonant sequences are not violated. The form is **-ir-** after obstruents and after a sequence of two consonants, the form of the circumstantial marker fused with a middle voice marker has the form **-ɔ-r-**.

***saɲ**	+	***ir**	+	***wal**	->	**caɲir-gal**	'loom'
***dam^{m}b**	+	***ɔ-r**	+	***ru**	->	**dam^{m}bor-du**	'wedding house'
***ʔun**	+	***ir**	+	***wal**	->	**ʔunir-gal**	'mortar'

The combination of the circumstantial extension **-r-** followed by an active voice marker **-u-** is also followed by the plosive initial suffix allomorph, even though the circumstantial marker **-r-** is not adjacent to the initial consonant of the suffix.

***siiw**	+	***r-u**	+	***rɛ**	>	**siiwru-dɛ**	'form for casting metals'
***fih**	+	***r-u**	+	***wal**	>	**piiru-gal**	'drumstick' (Arnott 1970a)
***ɓir**	+	***r-u**	+	***wal**	>	**ɓirdu-gal**	'milking calabash'

The hypothesis is that historically the circumstantial meaning was initially defined only by the occurrence of the circumstantial extension in the stem. Later, the formation with the plosive initial conditioned allomorph developed into the marker of the circumstantial. Synchronically the grade C suffix is also found in noun stems that are derived from verbs and that denote circumstantial meanings, with or without the actual presence of the circumstantial extension [-**r**-].

The irregular presence of the circumstantial extension in the surface form causes the following dilemma: should the circumstantial marker ***r** be included as a grade marker in the underlying structure to account for its phonological influence on the class markers? Or is this not possible, and should the suffix form with an initial plosive be considered a different morpheme?

	***haas**	+	***aa**		+		***dɛ**	>	**haasaadɛ**	'file'
	***damm**	+	***u**		+		***gal**	>	**dammu-gal**	'door'
or											
	***haas**	+	***aa**	+	***r**	+	***rɛ**	>	**haasaadɛ**	'file'
	***damm**	+	***u**	+	***r**	+	***wal**	>	**dammu-gal**	'door'

The voiced and voiceless consonants become plosives after the consonant [**r**] to avoid a violation of the sonority hierarchy. The suffix initial laryngealized alveolar consonants are more difficult to explain: perhaps they are the result of a merger between the glottal stop and the alveolar [**r**]. The circumstantial word formation is historically derived from (the reduced form of) the circumstantial extension [**r**] and the underlying form of the suffix. On the surface, the circumstantial marker has caused the class suffix to become plosive initial. The question remains as to whether the historical sequence ***r** + class marker is still present in the underlying structure. The stems combining with suffixes of the circumstantial word derivation are always verb stems, possibly followed by verbal extensions and voice markers. The stem can therefore be either consonant or vowel final.

The forms of the suffixes in the circumstantial word derivation (grade C) are given in the table below. Note that the grade C suffixes can only be distinguished from the grade D suffixes when the suffix initial consonant is voiced.

label of class	underlying form	historical form	grade C form preceding *r not necessarily present on the surface
'O	*r-ʔɔ		(r)-ɗɔ
'DI	*r-ʔi		(r)-ɗi
'DE	*r-ʔɛ		(r)-ɗɛ
'DAM	*r-ʔam		(r)-ɗam
'DUM	*r-ʔum		(r)-ɗum
NDU	*r-ru		(r)-du
NDE	*r-rɛ		(r)-dɛ
NDI	*r-ri		(r)-di
KI	*r-hi	< *r-xi	(r)-ki
KA	*r-ha	< *r-xa	(r)-ka
KO	*r-hɔ	< *r-xɔ	(r)-kɔ
KAL	*r-hal	< *r-xal	(r)-kal
KOL	*r-hol	< *r-xol	(r)-kol
KOY	*r-hoy	< *r-xoy	(r)-koy
NGO	*r-wɔ	< *r-ɣɔ	(r)-gɔ
NGE	*r-wɛ	< *r-ɣɛ	(r)-gɛ
NGU	*r-wu	< *r-ɣu	(r)-gu
NGAL	*r-wal	< *r-ɣal	(r)-gal
NGEL	*r-wel	< *r-ɣel	(r)-gel
NGOL	*r-wol	< *r-ɣol	(r)-gol
BA/NGA	*r-wa	< *r-ɣa	(r)-ba / (r)-ga
'BE	*r-ɓɛ		(r)-ɓɛ

6.2.4 GRADE D: PRENASALIZED INITIAL SUFFIX FORM

Klingenheben proposed that the prenasalized fourth grade (D) emerged from the assimilation of a nasal stem final consonant to the initial consonant of the class suffix. His viewpoint does not differ much from that of Paradis, who proposes a "floating" nasal preceding the suffixes of grade D as part of the stem. But neither of them attributes an independent meaning to the nasal that precedes the grade D suffixes.

My hypothesis is that the nasal which combines with the underlying form of the suffixes to form the suffixes of the subjective word derivation is a form which is cognate to the referential pronoun marker. The referential marker ***n** occurs in a few pronominal forms indicating "the one we talked about". In other dialects all the class concords can form a referential pronoun, in Maasina the personal pronouns and the adverbs of place (see section 5.6.3) are found with the referential marker, but not the other class concords.

*ʔɔ	+	V	+	*n	>	ʔɔɔn	'the one (person) talked about'
*ɓɛ	+	V	+	*n	>	ɓɛɛn	'the ones (persons) talked about'
*to	+	V	+	*n	>	toon	'over there (place talked about)'

The formation of the independent pronouns looks remarkably similar to the formation of the referential pronouns.

***mi**	+	V	+	***n**	>	**miin**		'I'
***ʔa**	+	V	+	***n**	>	**ʔaan**		'you'
***min**	+	V	+	***n**	>	**minɛn**	[**minɛ̃**]	'we excl.'
***ʔɛn**	+	V	+	***n**	>	**ʔɛnɛn**	[**ʔɛnɛ̃**]	'we incl.'
***ʔɔn**	+	V	+	***n**	>	**ʔɔnɔn**	[**ʔɔnɔ̃**]	'you pl.'

The independent pronouns express emphasis and they refer to the person in question. Attention is drawn to the pronoun when the independent pronoun is used. A similar deictic or referential meaning is thought to be expressed by the nasal ***n** that is proposed to occur in the formation of the pronouns. Both object and subject pronouns have the same forms in Maasina. The hypothesis is that the suffixes of the subjective word formation are cognate with the subject pronouns. The nasal preceding the underlying form of the class suffixes is thought to be this referential marker ***n**.

The nasal preceding the pronouns has to be deleted because in syllable initial position only one consonant is allowed. When the initial consonant of the suffix is voiced, this nasal pronoun marker can leave a trace: prenasalization of the initial consonant of the suffix. This trace is not found when the initial consonant of the class marker is voiceless, or glottal, or laryngealized, because these consonant cannot be prenasalized.

The trace of the nasal marker with the glottal stop initial class markers is left in the alveolar place features of the initial consonant of the pronouns. The alveolar nasal ***n** merges with the suffix initial glottal stop ***ʔ**, the result of the merger is a laryngealized alveolar stop [**dˀ**].

The trace of the nasal marker on the voiceless initial is the fact that the [+continuant] velar voiceless ***x** becomes a [-continuant] stop [**k**] in order to prevent a violation of the sonority hierarchy.

There is no trace of the referential pronoun marker ***n** in the suffix form -**ba** in Maasina. This confirms the hypothesis that the BA class is a rather new class, formed when the formation of the pronouns was no longer a productive rule (see section 7.2.14).

The table below lists the forms of the grade D suffixes that are used to mark the subjective word derivation. The forms are identical to the forms of the pronouns, for which the same derivation is proposed.

label of class	underlying form	historical form	grade D form
'O	*n-ʔɔ		-ɗɔ
'DI	*n-ʔi		-ɗi
'DE	*n-ʔɛ		-ɗɛ
'DAM	*n-ʔam		-ɗam
'DUM	*n-ʔum		-ɗum
NDU	*n-ru		-ⁿdu
NDE	*n-rɛ		-ⁿdɛ
NDI	*n-ri		-ⁿdi
KI	*n-hi	<*n-xi	-ki
KA	*n-ha	<*n-xa	-ka
KO	*n-hɔ	<*n-xɔ	-kɔ
KAL	*n-hal	<*n-xal	-kal
KOL	*n-hol	<*n-xol	-kol
KOL	*n-hoy	<*n-xoy	-koy
NGO	*n-wɔ	<*n-ɣɔ	-ⁿgɔ
NGE	*n-wɛ	<*n-ɣɛ	-ⁿgɛ
NGU	*n-wu	<*n-ɣu	-ⁿgu
NGAL	*n-wal	<*n-ɣal	-ⁿgal
NGEL	*n-wel	<*n-ɣel	-ⁿgel
NGOL	*n-wol	<*n-ɣol	-ⁿgol
BA / NGA	*n-wa	<*n-ɣa	-ba / -ⁿga
'BE	*n-ɓɛ		-ɓɛ

The subjective word formation is historically derived from the referential pronoun marker ***n** and the underlying form of the suffix. On the surface, the subjective marker is therefore identical to the pronouns, which are formed in the same way. The suffixes of the subjective word derivation are thought to function as inverted subject pronouns. The stems combining with suffixes of the subjective word derivation are always verb stems, possibly followed by other verbal extensions, voice markers, aspect markers and/or the tense marker **-nɔ**, like the participles. The stem can therefore be either consonant or vowel final.

6.2.5 THE HISTORICAL PHONOLOGICAL HYPOTHESIS

It is possible to state that historically the suffix forms of the different grades have developed from the class markers (grade A), from the fusion of the class markers with the associative grade marker or associative extension ***ɥ** (grade B), from the fusion of the class markers with the circumstantial grade marker or circumstantial extension ***r** (grade C), and from the fusion of the class markers with the subjective grade marker or referential pronoun marker ***n** (grade D). This analysis is confirmed by the different meanings attached to the word formations in the different grades, and by the plausibility of the phonological rules, which also occur elsewhere in the Fulfulde language.

Synchronically this analysis can lead to two different interpretations. Either all the sixty or more different suffix forms (listed in the table in section 6.1) have to be treated as different portmanteau morphemes, or the grade markers have to be allowed for in the underlying deep

structure to explain these suffix forms from a combination of twenty-two class markers with the possible occurrence of three grade markers. This thesis opts for the last solution.

The hypothesis is demonstrated in more detail in a description of the different classes in the next chapter. More attention will be given to the so-called irregular suffix forms **-wɔ**, **-kɔ** **-aaku**, **-aagu** **-ŋkɛ** (of the 'O class), **-eefi** (of the KI class), **-ⁿdam** (of the 'DAM class), **-ˀɛn** (of the 'BE class), and **-ɛɛlɛ** (of the 'DE class). Some attempt will be made to explain suffix forms **-li**, **-lɛ**, **-lal**, **-lel**, **-loy** (of the classes 'DI, 'DE, NGAL, NGEL, KOY) which also constitute a problem for the lexical hypothesis. The hypothesis is that they are also fused forms, combining with an augmentative marker ***l** that sometimes has the meaning "large quantity of".

The nominal word formation is demonstrated by numerous examples of nouns in all the twenty-two classes. The nominal word formation is an elaborate system of combining meanings encoded in the nominal or verbal root, in the possible verbal extensions and voice markers, aspect markers, tense marker (**nɔ**), grade markers, and class markers.

In the morphemic analysis, the major principle applied is the denial of true synonyms. If two forms with similar meanings are not phonologically conditioned allomorphs then they must have a distinct meaning that is signalled by their difference in form.

This principle necessitates research into the semantic content of e.g. the class suffixes. The semantic research into the class suffixes requires a more elaborate analysis of the meaning denoted by the different class markers, which will also be described in the next chapter. The semantic analysis of the Fulfulde noun classes has so far mainly consisted of lists of items within each noun class. It has to be admitted that the categories underlying the grouping of nouns into noun classes and the semantic structure linking the nouns within each class are not always obvious. And, like all descriptions of meaning, they call upon the intuitions of both the speakers and the interpreting linguist. The only available tool to verify these hypotheses is that they should appeal to the common sense, of the speakers, in the first place. The danger lies in the fact that the intuitions of a single person (the interpreting linguist) can easily overshadow the true intuitions of the speakers in such complicated semantic matters. The present proposals are built on the common sense of a Dutch linguist, trying to make sense of explanations and translations of meanings given in French and Fulfulde. That is also why the proposals for the content of the Fulfulde noun classes have to be seen as provisional. So there are ample reasons to be careful with a description of the semantic categories expressed by the Fulfulde noun class system. One should be even more careful with possible conclusions about the cognition of the speakers of Fulfulde. But a semantic study of the content of the class markers is very worthwhile, even at its present preliminary state. It has led to the discovery of the semantic basis of the grade system in Fulfulde.

Chapter seven
The noun classes

7.1 THE SEMANTIC PRINCIPLES OF NOMINAL CLASSIFICATION

The nouns in Fulfulde are subdivided into twenty or more noun classes. The grouping of nouns into classes is a form of categorization. The semantic principles which underlie the categorization of the nouns are discussed in sections 7.1.1 to 7.1.3. This introductory section defines the noun classes formally.

A noun class is morphologically signalled by the form of the class marker that occurs as a suffix on most nouns. A noun class is syntactically defined by the use of the same concord as an anaphoric marker. The number of classes varies from dialect to dialect. The Maasina dialect has twenty-two classes (Tioulenta 1991:171). The Gombe dialect has twenty-five classes (Arnott 1970a:75). The following examples show nouns in all twenty-two classes of the Maasina dialect. The boundary between the noun stem and the class suffix is indicated by a hyphen. The concord form that follows the noun is the definite article.

Examples of the classification of nouns:

		class
nɛɗ-ɗɔ ʔɔ	'the person'	'O
yim-ɓɛ ɓɛ	'the people'	'BE
ɓiŋ-ⁿgel ⁿgel	'the little child'	NGEL
ɓik-koy koy	'the little children'	KOY
kɔs-am ɗam	'the milk'	'DAM
kɔs-al kal	'the little bit of milk'	KAL
haay-rɛ ⁿdɛ	'the stone/rock'	NDE
ⁿgaa-ri ⁿdi	'the bull'	NDI
saw-ru ⁿdu	'the staff'	NDU
ɲiiw-a ba	'the elephant'	BA
nag-gɛ ⁿgɛ	'the cow'	NGE
faɗ-ɔ ⁿgɔ	'the sandal'	NGO
ⁿguu-gu ⁿgu	'the clitoris'	NGU
cɔf-al ⁿgal	'the chicken'	NGAL
laaw-ol ⁿgol	'the road'	NGOL
laan-a ka	'the boat'	KA
lek-ki ki	'the tree'	KI
huɗ-ɔ kɔ	'the grass'	KO
dammul-ol kol	'the lamb or kid'	KOL
goɗ-ɗum ɗum	'the other one'	'DUM
kull-ɛ ɗɛ	'the things'	'DE
daabaa-ji ɗi	'the animals'	'DI

The concord is usually of the same class as the class suffix. Sometimes the class of the concord is not identical to the class of the suffix. A shift in concord class (often due to semantic reanalysis of the content of the suffix class) can be the cause of this difference. A small number of nouns does not have a suffix, but these nouns are referred to with the concord of one of the noun classes.

Examples of nouns whose suffix class differs from the concord class:

		suffix class	concord class
daaba ʔɔ	'the animal'	-	'O
mɔɔntɔrɔ ʔɔ	'the watch'	-	'O
kɔrs-a ʔɔ	'the affection'	KA	'O
ɓoŋ-ⁿgu ʔɔ	'the mosquito'	NGU	'O
yaŋ-ⁿgɛ ʔɔ	'the ceremony'	NGE	'O

The concord defines the synchronic class affiliation of a noun, not the class suffix.

7.1.1 NUMBER

Noun classes contain information about the semantic category of number. A noun class indicates whether the noun is singular, plural, or uncountable (a collective or mass) (cf. Dimmendaal 1982). With regard to number, the noun classes of the Fulfulde of Maasina can be divided into three semantic categories. There are fourteen noun classes in which the majority of words are nouns which express singular concepts. There are four plural classes. Four noun classes are not specified for number because they group mainly mass nouns or collective nouns which are uncountable. The following table lists the semantic grouping of noun classes according to the category of number expressed by the noun class suffix.

Semantic grouping of noun classes according to number:
singular noun classes: fourteen classes
'O NDU NDI NDE NGE NGO NGAL
NGU NGEL NGOL BA KA KI KOL
plural noun classes: four classes
'BE 'DI 'DE KOY
non-countable noun classes (mass nouns, collectives): four classes
'DAM KO 'DUM KAL

This chapter discusses all the noun classes in Maasina separately: singular classes in section 7.2, non-countable classes in section 7.3, and plural noun classes in section 7.4.

7.1.2 SIZE

Two singular/plural pairs of noun classes have a productive inflectional function in Fulfulde as the markers of the augmentative and the diminutive word formation. The augmentative noun classes show that the Fulfulde noun classes are very different from dialect to dialect. A description of the noun class system needs to take this into account and one should describe the noun class system of each dialect separately before a comparison can be made. The

following list shows the diminutive and augmentative classes in Maasina (Tioulenta 1991:166) and Gombe (Arnott 1970a:75).

Maasina	Gombe	semantic category indicated by the class suffix
NGEL	NGEL	diminutive
KOY	KON	plural diminutive
KAL	KAL	small quantities
	NGUM	pejorative diminutive
NGAL	NGA	augmentative
'DE	KO	plural augmentative

The diminutive classes occur only in diminutive forms of nominal paradigms. The augmentative NGAL class in Maasina also contains other nouns.

7.1.3 SEMANTIC ASSOCIATIONS

Most noun classes do not have a homogeneous semantic content, they have no obvious semantic feature that can serve as a label. The semantic motivation for the groupings of nouns into these classes and the principles that govern their distribution have received relatively little attention in the literature on Fulfulde (Arnott 1959, 1967, Lacroix 1967, Mukarovsky 1983, Mukoshy 1991, Mohamadou 1991, 1994). There are within these classes clear semantic groupings. Arnott (1970a:75) lists a number of generalizations that can be made about the meanings of the nouns found in the different classes in Gombe. He lists some shapes (globular and annular things in the NDE class; long and thin things in the NGOL class) and some life forms (fishes in the NGU class; trees in the KI class) as typical for certain classes, besides meanings related to size and number. Mohamadou* (1991, 1994) tries to find semantic features shared by all nouns in a class in order to describe the meaning of the classifiers, using the model of Culioli. This model still leaves a number of semantic groupings (e.g. 'cow', 'fire', and 'sun') unexplained.

There are two main obstacles that may have prevented linguists from unravelling the semantics of the noun classes. One obstacle is the limited vision on possible principles for the semantics of a noun class. A class is marked by one morpheme, hence it was concluded that this morpheme should have one (constant) meaning retrievable in all nouns formed with that class marker. Thus, only one possible semantic motivation for a noun class was envisaged: namely the idea that all nouns in a class share one and the same semantic feature, thus forming a semantic field. Recent studies (Dixon 1982, Lakoff 1987) have shown that the groupings can be based on the fact that items belong to the same semantic frame. A semantic frame is created by associations. The items are grouped together because they occur in the same domain of experience. Lakoff calls this the Domain of Experience Principle:

* This study does not provide Mohamadou's semantic analysis in any detail. Mohamadou uses a different model emphasizing the search for a common feature in the form of a combination of the notions "dense", "discrete", and "compact" for all nouns of one class, whereas the present study emphasizes the search for semantic associations within a noun class. It is nevertheless remarkable that many subgroupings within the various Fulfulde classes are very similar in both studies.

> If there is a basic domain of experience associated with A, then it is natural for entities in that domain to be in the same category as A. (Lakoff 1987:93)

The Domain of Experience Principle is an important innovation in the description of noun classification. It is a new tool that can be used to look for motivations for the classification of nouns other than the simple sharing of one semantic feature.

A second obstacle to the research into the semantic categorization of nouns in Niger-Congo languages follows from the domain of experience principle. Culture plays an important role in the definition of these domains of experience. Therefore, culture is also important in the categorization of things. It is very human but naive to regard one's own culture as universal and all other cultures as a deviation form the normal pattern. The false presumption that a Western point of view is a universal point of view can easily make one blind to the different perspectives on how things are related in other cultures. Lakoff states explicitly that a dominant Western point of view has consequences for the study of categorization in non-Western languages:

> The fact is that people around the world categorize things in ways that both boggle the Western mind and stump Western linguists and anthropologists. More often than not, the linguist or anthropologist just throws up his hands and resorts to giving a list... (Lakoff 1987:92)

Such a list of items which are classified together is also given by Arnott as the description of the semantic content of noun classes in Fulfulde. These subsets are identified because they share a common semantic feature. The search for common features in the meaning of nouns of one noun class can lead to the discovery of semantic fields which are subsets of that noun class. Listing the semantic subsets of a noun class is the beginning of the search for the semantic principles that underlie the categorization expressed by the noun class system.

Besides the grouping in semantic fields, nouns can also be grouped on the basis of a shared semantic frame, i.e. they do not have a semantic feature in common but their meanings co-occur in the same semantic context, i.e. they index parts of experience.

Some particular forms of semantic association are metonymy, abstraction, and opposition. Words which are related by metonymy are often in the same category. Metonymy is the relation of one well-understood or easy-to-perceive concept A which is either part of or closely associated with another concept B. Concept A can be an aspect of something that is used to stand for the thing as a whole or for some other aspect of it (Lakoff 1987:77-90). An example of metonymy is when a place stands for things that occur in that place. The word **suudu** 'house, home' is related by metonymy with things that happen with and at the home such as **lamru** 'name-giving feast seven days after the birth of a child' and **ʔegguru** 'migration'. This metonymic relation accounts for the fact that they are put in the same class. Another example of metonymy is when a thing and its function are associated with each other. Pieces of calabashes (usually halves) like **tum^{m}budɛ** 'calabash bowl' and **hɔrdɛ** 'calabash spoon' are typically used as kitchen utensils. Their function as a utensil has

motivated the grouping of other utensils such as **lɔɔⁿdɛ** 'water pot' and **haasaadɛ** 'file' in the same noun class as the calabashes.

Connotations of certain words can also motivate the grouping of other words with the same connotation. This is also an example of metonymy. Human beings are thought of as very valuable, other entities are grouped in the same class as human beings when they are also thought to be valuable. Words for God are grouped in the same 'O class because God is also thought of as very respectable and valuable.

Words can be linked by abstraction. Big birds are grouped in the NGAL class. The abstraction of the feature "big" from this semantic subset has motivated the augmentative function of the NGAL class. The NDI class groups words that are forms and means of production. The abstraction of the semantic feature "production" has motivated the grouping of a number of verbal nouns which express the result of the action described by the verb in the same NDI class., e.g. **needi** 'education' which is the result of **nehudɛ** 'to educate'.

Words can be linked in the same class because they are opposites. The word **ⁿguurⁿdam** 'life' is in opposition with a number of nouns which describe things that make one feel lifeless, like **ⁿjɔɔrⁿdam** 'drought, hardness' and **pɔɔyⁿdam** 'meagerness'.

Not all words in a class are directly linked to one another. It is also possible that words and semantic subsets are linked in a chain. An example of chaining is found in the NGAL class. The word **giyal** 'bone' is in the NGAL class because of its prototypical stick-like shape. The word **kɔyⁿgal** 'foot, leg' is linked to **giyal** 'bone' because it is a body part which contains a bone. The birds in the NGAL class are linked to **kɔyⁿgal** 'foot, leg' because of the fact that they are often cursorial birds, these birds walk rather than hop. The augmentative words are linked to the walking birds because of their prototypical size: walking birds are bigger than hopping birds (which are in the NDU class). The word **giyal** 'bone' has therefore no direct link with **nɛɗɗal** 'big person'. These words are linked indirectly via chaining by the concepts bone-foot-walking bird-augmentative.

Mythological information also plays an important role in explaining the categorization of nouns. The link between (more frequently flying, small, and hopping rather than walking) birds and the spiritual world can only be explained by the knowledge that the Fulbe speakers have about the spiritual world. The Fulbe say that some birds can do the same things as bad spirits. People say that, like spirits, these birds can cause people to be sick, they can cause people to become crazy and wander around without a goal, and they can cause children to die (De Bruijn personal communication). Pejorative names are given to children to mislead the spirits in letting them think that the child is not valuable enough to be taken away. The categorization of spirits, birds, and pejorative names in the NDU class is motivated by their co-occurrence in the experience of the Fulbe with the spirits.

It follows that the nature of the semantic content of a class and the factors that motivate the links between the different groups in a class are determined by the culture in which the Fulfulde language is used. The present hypotheses are preliminary. The validity of the proposed associations has to be further tested against the cognition of the speakers, for example by word association tests and the explanations that speakers give for their associations.

Many Niger-Congo languages have a system of noun classes (Bendor-Samuel 1989, Williamson 1989), and being an Atlantic language (see Greenberg 1970, Wilson 1989), so does Fulfulde. The noun class systems in all these languages show many formal similarities

in the way that nouns are categorized. The many cognate noun classes show that the present noun class systems are a reflection of many thousands of years of human experience. Even though the classes may be shared in broad terms, they are motivated, understood and sustained in cultural terms. The hypothesis is that the present culture of a speech community does have an influence on the semantic classification of the nouns. Synchronic class-shifts show that the noun class system is constantly subject to semantic re-analysis. This is demonstrated by the semantic shift of the nouns from the NGU class into the 'O class due to a "recent" taboo on the female sexual organs which remain the only nouns that are denoted by the NGU class in the dialect of Maasina. The integration of loan-words into the Fulfulde noun classes motivated by semantic analogy also demonstrates that the semantic principles motivating the categorization expressed by the noun classes are productive.

The semantic principles motivating the categorization of nouns often have the form of semantic associations. These associations link the meanings of the nouns in one noun class. All the semantic associations found in one noun class form a semantic network. The semantic networks are represented by figures consisting of circles and lines which are labelled. The circles in a semantic network represent semantic subsets which are formed by a semantic field, i.e. words that share a semantic feature. The shared semantic feature of a semantic field is written in italics within the circle that represents a semantic field. The examples are in plain letters. The basis of the associations is written outside the circles on the lines that link the subsets. The semantic subsets which can consist of one word only are linked by metonymy or by metaphor or by the extension of the meaning of the semantic category or by association of the meaning of one of its members to another subset.

The different forms of the suffixes distributed over the different suffix grades is also exemplified in the discussion of each noun class. The semantic effect of the grade marker and the semantic effect of the class marker itself are extensively discussed. The nouns which have a class suffix that is different from their concord is sometimes discussed under the noun class of their suffix, even if their actual syntactic and synchronic noun class is the class of the concord.

7.2 SINGULAR CLASSES

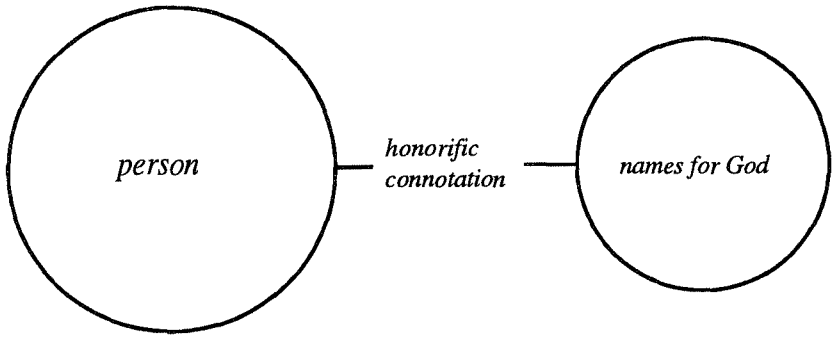
The majority of nouns in these classes have a singular meaning. In the paradigm of the noun, the same stem also combines with a plural class marker. Although the singular meaning is predominant in these classes, some of them also contain a small number of uncountable nouns, e.g. a word like **ⁿjaareeⁿdi** 'sand' in the NDI class.

7.2.1 THE 'O CLASS

The 'O class contains the largest number of nouns and the largest number of suffix forms. Speakers who learned Fulfulde late as a second language in Maasina have generalized this class concord as the concord of all nouns. Mother tongue Fulfulde speakers simplify their language by replacing all concords with the concord of the 'O class when talking to foreigners (cf. Tioulenta 1991:201).

In Maasina the 'O class suffix is found on a number of stems which is smaller than the number of nouns using the concord of the 'O class. First, the nouns with a suffix of the 'O class are discussed. The semantic label [human] only describes the meaning of the nouns that take the suffix of the 'O class. The class of human beings has honorific connotations because

people are thought of as respectable beings. This honorific connotation is the reason why names for God are classified in this class too. The majority of nouns with a suffix of the 'O class form a semantic field, they share the semantic feature "person". This semantic field is linked by association to another semantic field consisting of names for God.



persons		*names for God*	
gɔrkɔ	man	**laamɗɔ**	lord, ruler
dɛbbɔ	woman	**geɛnɔ**	eternal one
nɛɗɗɔ	person	**dɛwɛteɛɗɔ**	who is being obeyed

Not all terms that denote human beings are in the 'O class. Some names denoting persons can be found in other classes motivated by additional semantic connotations. Abusive names used in name calling are in the NDE class, names to protect children from evil spirits are in the NDU class, ex-slave names are in the NDI class, ordinary names and (inalienable) address terms for kinship relations use the concord of the 'DUM class. Names can contain the suffix of the 'O class, e.g. **gaaɗɗɔ** (lit: 'happy one') but they use a concord of the 'DUM class. The only words denoting persons which are not in the 'O class and which are perhaps not names are **ᵐboomri** '(strong) nubile girl' and **baaŋaaru** 'herdsman'. The last word is also the name of a bird that is always found near cows. Being a bird motivated its membership of the NDU class, the meaning was extended by metaphor to the herdsman who is always found in the company of cows. The NDI class membership of **ᵐboomri** '(strong) nubile girl' may be motivated by the image of a strong young girl as a sign of wealth.

The suffix forms of the 'O class are given in the following table. Historically all the suffix forms are based on the class marker *ʔɔ of the 'O class. The different suffix forms result from the combination of the class markers with the different grade markers or with other morphemes.

grade A:	-ɔ	<	*-ʔɔ	objective word derivation: attached to nominal stems, person is object (patient) of related verb in deverbal word derivation
	(-j)-ɔ	<	*-y-ʔɔ	in affectionate nouns with *aay
grade B	-jɔ	<	*-ɥ-ʔɔ	associative word formation: person associated with meaning of noun in stem
	-ɔɔwɔ	<	*-ɔ-ɥ-ʔɔ	agentive noun in 'O class
grade C:	-ɗɔ	<	*-r-ʔɔ	alienable kinship terms
grade D:	-ɗɔ	<	*-n-ʔɔ	subject pronoun, attached to verbal stem followed by verbal marker in participle
atypical:	-kɔ	<	*-k-ʔɔ	rare form, possibly historically old possessive form

The nouns which use a concord in the 'O class but which have a different or no class suffix are discussed in sections 7.2.1.7 and 7.1.2.8. These nouns cannot all be characterized by the semantic feature [human].

7.2.1.1 THE GRADE A SUFFIX FORM -ɔ

The suffix form -ɔ marks nouns denoting human beings, formed using the objective word derivation. The underlying form of this suffix is *ʔɔ. A glottal stop cannot occur next to another consonant.

dim-ɔ / rimɓɛ	'nobleman, -woman'
gawl-ɔ / wawluɓɛ	'beggar (F: praise singer from Fuuta Tooro)'
bayl-ɔ / waylubɛ	'blacksmith'
ɲɛɛɲ-ɔ / ɲɛɛyɓɛ	'artisan, praise singer'
guj-jɔ / wuyɓɛ	'thief'
lab-bɔ / lawɓɛ	'woodworker'
kaab-ɔ / haabuuɓɛ	'woman with children'
capaat-ɔ / safarɓɛ	'Mauritanian'
dɔkk-ɔ / dɔkkɔʔɛn	'generous person'
maab-ɔ / maabuuɓɛ	'weaver, praise singer'

The suffix form -ɔ marks a number of nouns that are derived from verbs. Some of the above words may also have been derived from verbs, but their derivation is not transparent.

The objective word derivation indicates that the deverbal word has the semantic role of the object of the action expressed by its verbal stem. The semantic role of the object of an action verb is the patient. It is also the patient which is expressed when the noun is derived from a stative verb in the objective word derivation.

object of love: person who is being loved	**giɗ-ɔ / yiɓɓɛ**	'friend'
	yiddɛ (*yiɗ-)	'to love'
object of admiration: person who is being admired	**jaag-ɔ / yaagiraaɓɛ**	'sweetheart'
	yaag-aa-dɛ	'to admire, to respect, fall in love'

object of settling: person who is being settled	**kɔɗ-ɔ / hɔɓɓɛ**	'guest'
(a guest is s.o. who is settled by his/her host)	**hoɗ-u-dɛ**	'to settle'
patient of being toothless: person who is toothless (experiencer)	**mulg-ɔ**	'toothless person'
	mulg-u-dɛ	'to be(come) toothless'
object of hate: person that is being hated	**gaɲ-ɔ / way-ɓɛ**	'enemy'
	waɲ-u-dɛ	'to hate'
object of dispersion: person who is being dispersed	**pull-ɔ / ful-ɓɛ**	'Fulbe person'
	full-u-dɛ	'to disperse'
object of obedience: person who is being obeyed	**dɛb-bɔ / rɛw-ɓɛ**	'woman'
	rɛw-dɛ	'to obey, follow'

The word **dɛbbɔ** 'woman' is paraphrased as a person who is being obeyed, not as a person who obeys (which would give the forms **dɛwɗɔ** 'who has obeyed' or **dɛwɔɔwɔ** 'who is obeying'). There is some cultural evidence that the role of Fulbe women is indeed not subordinate. It is mainly in the social sphere that women have a greater say than men. Marriages, for example, will not take place if women do not agree. Guests will not be received when women refuse to give milk and butter. Milk and the milking rights of women form the basis of this influential position of Fulbe women (De Bruijn, personal communication).

A number of nouns with the suffix form -ɔ express the semantic role of the subject of the related verb. Synchronically, they cannot be analyzed as agentive derivations because the productive marker for the agentive nouns in the 'O class has the form -ɔɔwɔ (see section 7.2.1.2 and section 8.1.4). Perhaps the verbs related to these nouns are derived from the noun stem, rather than the noun being derived from the verb stem.

Nouns which denote agents formed with the grade A suffix -ɔ:

gujj-ɔ / wuyɓɛ	'thief'	**wujj-**	'steal'
labbɔ / lawɓɛ	'woodworker'	**law-**	'dig in wood'
baylɔ / waylußɛ	'blacksmith'	**wayl-**	'transform'
ɲɛɛɲɔ / ɲɛɛyɓɛ	'praise singer'	**ɲɛɛɲ-**	'flatter' [FT]
ŋɛɛɲɔ / ŋɛɛyɓɛ	'praise singer'		

A "thief" is the agent of the verb "to steal". A praise singer is the agent of the verb "to flatter". A blacksmith transforms iron ore into iron, and iron into tools. A woodworker is the agent of the verb "to dig into wood". These agentive nouns remain counter-examples to the generalization that grade A nouns express a notion of "object". However, grade A is the unmarked grade. The interpretation of its meaning is not as strict as the notions expressed in the other grades. Another possible explanation is that the formation of these agentive nouns with only the suffix form -ɔ added to the verb root is a petrified agentive word formation that is older than the productive agentive formation with the suffix -ɔɔwɔ. This might indicate that the semantic differentiation between the different suffix forms of one noun class was a later innovation in Fulfulde.

There are a number of nouns where a morpheme **-ar-** is added to the nominal stem. The morpheme **-ar-** adds a diminutive and pejorative meaning to the word. The noun stems which contain this morpheme **-ar-** combine with the grade A suffix **-ɔ**.

dunⁿd-ar-ɔ / dunⁿdarɓɛ	'bold, cheeky person'
nɛɛt-ar-ɔ / nɛɛtarɓɛ	's.o. impolite, uneducated'
ɲaamt-ar-ɔ / ɲaamtarɓɛ	's.o. who eats alone avoiding others'
buuw-ar-ɔ / wuuwarɓɛ	'nomadic lineage of Fulbe'
jatt-ar-ɔ	'impolite person'

A small number of affectionate terms take the suffix form **-jɔ** in the singular. The consonant [j] is analyzed as stem final, which is followed by the suffix form **-ɔ** of grade A. The affectionate connotation of these words is demonstrated by comparing them with nouns expressing the same concept, but without the affectionate connotation.

jɔmᵐb-aaj-ɔ / yɔmᵐb-ay-ɓɛ	'newly-wed'	cf. **kurtindɔ**, **kurtaadɔ**
bamᵐb-aaj-ɔ / wamᵐb-ay-ɓɛ	'praise-singer'	cf. **maabɔ**
diim-aaj-ɔ / riim-ay-ɓɛ	'(ex-)slave'	cf. **maccudɔ**
surb-aaj-ɔ / surb-ay-ɓɛ	'nubile girl'	cf. **ᵐboomri**

One argument for the analysis of the morpheme with the forms **-aaj-** in the singular and **-ay-** in the plural is the semantics. What is common to these four nouns given above is an element indicating affection. It is not probable that this morpheme ***aay** is the negation as suggested by Riesman (1977:83) and others (Diarah 1982:291-292, Ba & Daget 1962:66), because nowhere else can a negation marker be found in a nominal word derivation. Another argument for the postulation of the morpheme ***-aay-** is the plausibility of its allomorphy **-aaj-/-ay-**. The gemination of the final glide [y] in combination with the underlying glottal initial consonant of the suffix *ʔɔ is a regular process. The stem final [y] can form a geminate consonant [jj] as a result of its merger with the suffix initial consonant [ʔ], just as in the word **gujjɔ/wuyɓɛ** 'thief'. The shortening of the geminate consonant [jj] in the singular form can be explained by the avoidance of a marginal CVVC syllable structure. The length alternation of the vowel [a] in the morphemes **-aaj-/-ay-** in the singular and plural can be explained in the following way: the vowel [aa] is shortened in the plural to avoid the marginal syllable structure CVVC. Shortening of the CVVC structure often takes place, although it is not obligatory.

***ʔ-yɔmᵐb-aay-ʔɔ > *jɔmᵐb-aaj-jɔ > jɔmᵐb-aaj-ɔ**
***yɔmᵐb-aay-ɓɛ > yɔmᵐb-ay-ɓɛ**

The singular forms of these affectionate terms are analyzed as containing the grade A suffix **-ɔ**. The word **jɔmᵐbaajɔ** 'newly-wed' does not contain the grade B suffix **-jɔ**, because a grade B suffix would not leave a trace of [y] in the plural form **yɔmᵐbayɓɛ**. The morpheme ***-aay-** indicating affection could be related to the forms **-aaɲ-** and **-ay-** in the affectionate term **bapp-aaɲ-ɔ/wapp-ay-ɓɛ** 'uncle, father's brother'. The word has a short form **bappa** used as the address term for the paternal uncle. The identical plural formation and the

presence of an affectionate connotation in both stem formations with the morpheme ***-aay-** and the morpheme ***-aaɲ-** point to an etymological relation. There is an affectionate association present in the relation with a **bappaaɲɔ**, even though this relation can be disturbed by competitive interest in cattle inheritance. A **bappaaɲɔ** has to take care of you when your father dies. The relation between you and your **bappaaɲɔ** is similar to the relation between you and your father except that it is more relaxed because one (especially a son) has to show great respect (**yaagɛ**) to one's father (De Bruijn and Van Dijk, personal communication).

Klingenheben (1941:41) describes the noun **bappaaɲo** 'paternal uncle' as a compound based on the word **baaba** 'father' and gives two possible etymological explanations: a combination with either the stem **fam-** 'small' and the suffix **-jɔ**; or with the term found in Nigerian Fulfulde **paaɲo/fayɓe** 'youth' derived from the verb stem **faayndʼ-** or **faaydʼ-** 'be young, grow up' (Taylor 1932:47). Possibly the affectionate connotation present in the word **bappaaɲɔ / wappayɓɛ** 'father's brother' is signalled by the morphemes **-aaɲ- / -ay-** .

surbaajɔ / surbay-ɓɛ	'young, nubile girl'
surba / surbaa-ɓɛ	'young, nubile girl'

The alternative singular and plural formations for the word 'nubile girl' support the idea that reanalysis of the boundary between the stem and the suffix in this word could have taken place. The final syllable **-jɔ** is sometimes reanalyzed as the suffix form **-jɔ** in some words.

7.2.1.2 THE GRADE B SUFFIX FORM **-jɔ**

The nouns formed by the associative derivation in the 'O class contain the suffix form **-jɔ**. These nouns are based on stems which are themselves full words. Klingenheben (1963:127) calls these nouns secondary nominals [sekundäre Nomina]. These are nouns based on complete utterances which can be a full noun or even a full sentence. When the stem is a full noun, this stem can be an indigenous Fulfulde noun with a class suffix or a loan-word. The following examples involve stems based on full Fulfulde nouns.

dɛbɔ-reeduu-jɔ	'pregnant woman'	**reedu**	'belly'
ʔafɔɔ-jɔ	'first son'	**ʔafɔ**	'name of first son'
hakkuⁿdɛɛ-jɔ	's.o. in the middle'	**hakkuⁿdɛ**	'between'
hɔɔrɛɛ-jɔ	'chief, president'	**hɔɔrɛ**	'head'
yɛɛsɔɔ-jɔ	'the one in front'	**yɛɛsɔ**	'face'

The following examples are loan-words to which the **-jɔ** suffix of the associative derivation is added. The last three examples are taken from Tioulenta (1991:332, 336, 348).

gargasaa-jɔ / gargasaaɓɛ	'leather-worker	< Tsk.	**gargasa**
ʔannabaa-jɔ / ʔannabaaɓɛ	'prophet'	< Ar.	**ʔannaba**
kɛlɛmasaa-jɔ	'young man'	< Bmb.	**kɛlɛmasa**
buusɛɛ-jɔ / buusɛɛɓɛ	'butcher'	< Fr.	**buʃey** 'boucher'
punɛɛ-jɔ / funɛɛɓɛ	'twins'	< Son.	**fune**

Loan-words that are integrated into Fulfulde morphology by the suffixing of a class marker behave like other full indigenous Fulfulde nouns which receive a class suffix. They combine with a grade B suffix and replace the singular suffix with the suffix of the plural.

7.2.1.3 THE GRADE B SUFFIX FORM **-wɔ**: AGENTIVE

A special form of the 'O class occurs in the formation of agentive nouns in the 'O class. The following morphemes are present in the underlying structure of the agentive marker referring to persons in the 'O class

verb stem + ʔɔ + **ɥ** + ʔɔ > verb stem + **ɔɔwɔ**

The agentive noun in the 'O class does not take the suffix form **-jɔ** which would be the regular suffix form in grade B, but the atypical grade B form **-wɔ**. The agentive (**-ɔɔ-** followed by a grade B suffix) can combine with all classes. The morpheme **-ɔ-** in the stem is followed in other classes by the regular class suffix of grade B. The hypothesis is that the agentive marker **-ɔ-** is the same as the class marker of the 'O class. Stem final vowel lengthening is caused by the inchoative marker [**ɥ**] and is normal for stems in the associative word derivation.

ʔaawɔɔwɔ / ʔaawɔɔɓɛ	'fisherman'	< **ʔaawdɛ**	'to fish'
dimnɔɔwɔ / rimnɔɔɓɛ	'midwife'	< **rimnudɛ**	'to cause to give birth'
durɔɔwɔ / durɔɔɓɛ	'herdsman'	< **durdɛ**	'to pasture'
jɛɛyɔɔwɔ / yɛɛyɔɔɓɛ	'hawker'	< **yɛɛydɛ**	'to go around selling'
caɲɔɔwɔ / saɲɔɔɓɛ	'weaver'	< **saɲudɛ**	'to weave'

The formation of the agentive noun is irregular when the agentive marker-**ɔ-** is followed by the (cognate) class suffix of the 'O class, not in other classes. It is not clear why the agentive suffix in the 'O class has the form **-ɔɔwɔ** and not **-ɔɔjɔ**.

7.2.1.4 THE GRADE C SUFFIX FORM **-ɗɔ** IN KINSHIP TERMS

The suffix form **-ɗɔ** marks both the subjective and the circumstantial word derivation. Kinship terms (which are alienable) are formed with the suffix form **-ɗɔ** in Maasina. (In other Fulfulde dialects corresponding kinship terms are found with the suffix form **-wɔ**.) It is not always possible to decide whether a particular kinship term is formed using the subjective word formation or the circumstantial word derivation. The circumstantial extension **-ir-** is found in the word formation of kinship terms. The presence of the circumstantial marker **-ir-** is often reason for using the circumstantial word formation. But the kinship terms can also be interpreted as the subject of passive verbs expressing the state of being in a relation using the subjective word formation. The kinship terms behave like participles in their choice of the suffix form and in the occurrence of verbal morphemes in their stem. The morpheme **-aa-** occurring in kinship terms is identical to the morpheme indicating a passive and completive meaning in participles.

The kinship terms can be derived from both nominal and verbal roots. There are a few kinship terms which are related to existing verbs.

nawliraaɗɔ / nawliraaɓɛ	'co-wife'	**nawlirdɛ**	'to make co-wives'
gijiraaɗɔ / gijiraaɓɛ	'peer, age-mate'	**gijjirdɛ**	'to be(come) friends'
ban^{n}diraaɗɔ / ban^{n}diraaɓɛ	'sibling'	**ban^{n}dudɛ**	'to be(come) related'

These verbs are exemplified in the following sentences. The first example is taken from my field notes on the Ringimaaji dialect in Cameroon. The second example of Nigerian Fulfulde is from Taylor's dictionary (1932:148). The last examples are from Maasina.

Ringimaaji: **mi yiɗ-i ʔɛn soob-ir-a**
I want-COMPL us be friend-CIRC-SUB
'I want us to be(come) friends.'

Nigeria: **M. ɗaɓɓ-it-i nawl-ir-go ɓe: D. sali**
M. plan-REV-COMPL make co-wives-CIRC-INF them: D. refuse-COMPL
'M. wanted to make them his co-wives, but D. refused.' (Taylor 1932:148)

Maasina: **M. ʔanniy-ikɛ nawl-ir-dɛ ɓɛ, D. sal-ii**
M. intend-M.COMPL make co-wives-CIRC-INF them, D. refuse-M.R.COMPL
M. wanted to make them his co-wives, but D. refused.

miɗɔ yiɗ-i ^{n}giɟɟ-ir-ɛn
I-LOC want-R.COMPL be friend-CIRC-(SUB)-we incl.
I want us to be(come) friends.

The verb **nawlirdɛ** in the active voice means 'to make co-wives' (Taylor 1932:148). The verb **nawlirɛɛdɛ** in the passive voice means 'to be a co-wife' (Zoubko 1980:371). The verb stems **soobir-** in Ringimaaji and **^{n}giɟɟir-** in Maasina mean 'become friends, establish friendship'. The verb forms of the kinship terms in the active form seem to have the meaning of 'creating a (certain type of) relation with someone'. The verb forms in the passive form have the meaning of 'being in a (certain type of) relation with someone'. The kinship terms derived from the passive verb resemble participles. However, kinship terms are more often derived from nominal roots. The nominal roots can also have a short form. The short form is used as an address term and to express an inalienable relation.

ʔinniraaɗɔ / ʔinniraaɓɛ	'mother; sister of mother'	**ʔinna**
miɲiraaɗɔ / miɲiraaɓɛ	'younger sibling'	**miɲi**
mawniraaɗɔ / mawniraaɓɛ	'elder sibling'	**mawni**
maamiraaɗɔ / maamiraaɓɛ	'grandparent; ancestor'	**maama**
goggiraaɗɔ / goggiraaɓɛ	'paternal aunt, stepmother'	**gɔggɔ**
kaawiraaɗɔ / kaawiraaɓɛ	'maternal uncle'	**kaaw, kaw**
denɗiraaɗɔ / denɗiraaɓɛ	'cross-cousin'	**denɗi**
gen^{n}diraaɗɔ / gen^{n}diraaɓɛ	'wife'	**gen^{n}di**
ʔesiraaɗɔ / ʔesiraaɓɛ	'in-law'	**ʔesi**
baabiraaɗɔ / baabiraaɓɛ	'father'	**baaba, ʔabba**

nawliraadɔ / nawliraaɓɛ	'co-wife'	**nawla**
ban^{n}diraadɔ / ban^{n}diraaɓɛ	'sibling'	**ban^{n}di**
baaɗiraadɔ / baaɗiraaɓɛ	'child of sibling of opposite sex'	

The long form of kinship terms with the ending **-ir-aa-ɗɔ** occurs when the term is alienable. The word **baabiraadɔ** 'father' is used when a father in general is indicated or when it is not indicated whose father is being talked about. The inalienable kinship term is always followed by an indication of the person with whom this relation exists, so it is either followed by a name or by a (special) possessive pronominal suffix. The inalienable form can only occur in the singular. A kinship term has a class suffix in its alienable form. The plain inalienable form without a suffix only occurs when it is followed by a name of the person with whom there is such a relation.

ʔinna ʔaddu	'mother of Abdou'
ʔabba hammadi	'father of Hammadi'
miɲi kadiija	'younger sibling of Kadiija'
mawni fatumata	'elder sibling of Fatumata'
maama bɔɔkari	'grandparent of Bookari'
gɔggɔ mariyama	'paternal aunt of Mariyama'
kaw fanta, kaawu fanta	'maternal uncle of Fanta'
nawla ʔaysatu	'co-wife of Aysatu' (Zoubko 1980:371)

Kinship terms are examples of the circumstantial word derivation. This conclusion is based on the fact that the suffix form of grade C occurs in the paradigm of some kinship terms with the diminutive NGEL class. This is because the suffix forms of the circumstantial derivation and the subjective word derivation can be distinguished in the NGEL class.

miɲira-gel, miiragel	'little younger sibling'
miɲiraa-ɗɔ	'younger sibling'
miɲiraa-ɓɛ	'little younger sibling'

There are a few kinship terms that do not contain the verbal morphemes **-ir-aa-** in the alienable long form. These are the words **dɛwɔrɗɔ** 'potential in-law' and **ɓiɗɗɔ** 'child'. The word **dɛwɔrɗɔ** takes the suffix form of grade C, possibly on the analogy of the suffix form taken by other kinship terms in which the circumstantial verbal extension occurs. This form **-ɔr-** is the form of the circumstantial extension in middle voice verbs. Another difference with the alienable kinship terms is that there is no short inalienable form of this kinship term. The translation of **dɛwɔrɗɔ/rɛwɔrɓɛ** as an 'honoured person' by Zoubko (1980:130) does not convey the full meaning of the word. The term **dɛwɔrɗɔ** is used for people with whom one has an "avoidance" relation. One is not allowed to enter a courtyard where one's **rɛwɔrɓɛ** live. You are not allowed to eat with or to sit on the same bed with someone who is your **dɛwɔrɗɔ**. The families which are your **rɛwɔrɓɛ** in a village are fixed. You have to step aside and go in another direction to avoid greeting your **dɛwɔrɗɔ** when you see him or her coming. If greeting cannot be avoided you have to look the other way when greeting him or her. Families that are each others **rɛwɔrɓɛ** always come from the same social group. Your

rɛwɔrɓɛ are also **rimɓɛ** 'noble' when you are a **dimɔ** 'noble' yourself. If you are **diimaajɔ** 'ex-slave', your **rɛwɔrɓɛ** are also found amongst **riimayɓɛ** 'ex-slaves'. This avoidance behaviour is similar to the behaviour that one should show towards one's in-laws. This is because your wife will be chosen from your **rɛwɔrɓɛ** if there is no member in your family suitable as a marriage candidate. So **rɛwɔrɓɛ** are potential partners and potential in-laws. It is on the basis of this meaning that the following etymology of the word is proposed. The stem **rɛw-** 'female' combines with the verbal circumstantial extension **-r-** which introduces the argument with which the action of the verb is performed. The vowel [ɔ] is the middle voice marker which can express a meaning of potentiality (Arnott 1970a:257). Thus **dɛwɔrɗɔ** literally means "person from whose family you may get your wife". The word **dɛwɔrɗɔ** is treated as a kinship term. The presence of the circumstantial marker **-r-** conditions the circumstantial word derivation (grade C), as in all alienable kinship terms.

The word **ɓiɗɗɔ** 'child' is another word which is similar to kinship terms, but it does not combine with the verbal morphemes **-ir-aa-**. It takes the suffix form of grade D which is characteristic for verbal participles. It is not clear why this word is formed using the subjective word derivation of grade D.

ɓii ʔaadamu	'child of Aadamu' (inalienable form)
ɓiy-iikɔ	'his child' (inalienable form)
ɓiɗɗɔ / ɓiɓɓɛ	'child' (alienable form)
ɓiŋⁿgel / ɓikkoy	'little child' (diminutive alienable form)

The historical and underlying form ***ɓih** is proposed for the word 'child'. The consonant [**h**] cannot occur adjacent to other consonants, nor syllable finally. This form is still present in the rarely pronounced form **ɓihiikɔ** 'his/her child' which is said to sound very old-fashioned. In some other dialects the form **ɓihiikɔ** 'his/her child' is still regular. Compensatory lengthening of the vowel [**i**] takes place in the inalienable form of the word **ɓii**. The stem final [**h**] is deleted and compensatory lengthening of the suffix initial consonants [**ɗ**], [**ɓ**], [**ⁿg**], and [**k**] takes place in the paradigm of the alienable forms **ɓiɗɗɔ** 'child' **ɓiɓɓɛ** 'children', **ɓiŋⁿgel** 'little child', and **ɓikkoy** 'little children'.

7.2.1.5 THE GRADE D SUFFIX FORM **-ɗɔ**

Most nouns that combine with the suffix form **-ɗɔ** can be clearly explained as participles. The verb from which the participle is derived exists. The semantic interpretation of the suffix as the subject pronoun of the verb is quite transparent in these nouns. The morphemes expressing voice and aspect in the participles can be easily recognized in the following nouns. The morpheme of the active completive participle **-u-** can be deleted if the syllable structure conditions are not violated.

Active completive: **-u-** / Ø (zero)

kors-u-ɗɔ / horsuɓɛ	'sweetheart, lover'	**hɔrs-udɛ**	'to cherish, to love'
juul-ɗɔ / juulɓɛ	'Muslim'	**juul-dɛ**	'to pray'
cɛɛr-ɗɔ / sɛɛrɓɛ	'divorced man'	**sɛɛr-dɛ**	'to divorce'
bar-ɗɔ / warɓɛ	'murderer'	**war-dɛ**	'to kill'

Middle completive: **-ii-**			
laam-ii-ɗɔ / laamiiɓɛ	'chief'	**laam-aadɛ**	'to reign, to govern'
baɗɗ-ii-ɗɔ / waɗɗiiɓɛ	'horseman'	**waɗɗ-aadɛ**	'to mount a horse'
Passive completive: **-aa-**			
cɛɛr-aa-ɗɔ / sɛɛraaɓɛ	'divorced woman'	**sɛɛr-ɛɛdɛ**	'to be divorced'
kɔɔl-aa-ɗɔ / hɔɔlaaɓɛ	'trusted person'	**hɔɔl-ɛɛdɛ**	'to be trusted'
nɛl-aa-ɗɔ	'messenger, prophet'	**nɛl-ɛɛdɛ**	'to be sent'
tag-aa-ɗɔ / tagaaɓɛ	'human being'	**tag-ɛɛdɛ**	'to be created'
Middle incompletive: **-ɔtɔɔ-**			
jaag-ɔtɔɔ-ɗɔ / jaagɔtɔɔɓɛ	'trader, merchant'	**jaag-aadɛ**	'to trade'
lɔh-ɔtɔɔ-ɗɔ / lɔhɔtɔɔɓɛ	'hunter'	**lɔh-aadɛ**	'to lay in ambush'
Passive incompletive: **-ɛtɛɛ-**			
dɛw-ɛtɛɛ-ɗɔ	'God'	**rɛw-ɛɛdɛ**	'to be obeyed'

There are a number of nouns which take the suffix form **-ɗɔ** where it is more difficult to find the related verb from which the participle could have been derived. However, the composition of these words is so similar to that of participles that they are also considered to be participles in this study. Perhaps the verbs from which they were derived have been lost. It is also possible that a semantic shift has occurred which has obscured the semantic connection between the noun and the verb from which it is derived.

kɔɔrɗɔ / hɔɔrɓɛ	'female slave'	**hoor-a**	'take back, return home with' (Zoubko 1980:243)
cɛɗɗɔ / sɛɓɓɛ	'Sorogo'	**seɗ-a**	'sieve, sift, winnow, separate, differ, distinguish, diverge, divorce, be on bad terms with s.o., end sth., get rid of s.o.' (Zoubko 1980:430)

Many translation equivalents are given for the verb stem **seɗ-**. What meaning relates best to the ethnic name Sorogo (alternatively known as Bozo) is not obvious. Is the sifting a metaphor for their professional occupation as fishermen who use their nets to sift fish in the rivers and lakes? Is their name indicating that they are different from Fulbe? Was the name given at a time when Fulbe and Sorogo were on bad terms with each other? These are all plausible links but one cannot be sure which one is accurate.

maccuɗɔ / maccuɓɛ	'slave, prisoner of'	**macc-aa-go**	'to be enslaved'
		macc-in-go	'to enslave' (Noye 1989:235)

There is no active verb with the stem ***macc-** that serves as the verb stem for the participle **maccuɗɔ**. The verb stem occurs with the middle voice and in the active voice with the causative extension **-in-**. The meaning of the verb stem without the causative or middle voice meaning must be something like 'to be a slave'.

7.2.1.6 THE SUFFIX FORM **-kɔ**

There are two nouns that occur with the suffix form **-kɔ** in the 'O class.

gaynaakɔ	'herdsman, cowherd'
gɔrkɔ / wɔrɓɛ	'man'

A suffix of identical shape **-kɔ** also occurs in the independent pronoun and in the possessive pronouns of the 'O class.

kaŋ-kɔ	'he, she, it'
mak-kɔ	'his, hers, its'
-ii-kɔ	'his, hers, its'

The last example **-ii-kɔ** is the form of the possessive pronoun of the 'O class in combination with the short form of inalienable relationship terms. This is shown in the following examples.

gor-ii-kɔ	'her husband'
miɲ-ii-kɔ	'his/her younger sibling'

The suffix **-kɔ** is quite exceptional. It is considered to be a suppletive form. Possibly the suffix form **-kɔ** in **gɔrkɔ** 'man' is an old possessive form, which means that the word for man once meant someone's man. Possibly, the word **gaynaakɔ** 'herdsman, cowboy' has been derived from the verb root **wayn-** 'to watch over' combined with the stem of 'cow' reconstructed for Atlantic as ***nak**. This would imply that the consonant **[k]** in the word **gaynaakɔ** is part of the stem. Another possibility is that the old possessive form **-kɔ** occurs in the word **gaynaakɔ** which implies that a herdsman (at least at one moment in time) meant someone's herdsman.

7.2.1.7 'O CLASS NOUNS WITH A SUFFIX FROM OTHER CLASSES

A number of nouns which use the concord of the 'O class appear with a suffix of a different class. There are four such classes in Maasina. First, the words ending in a suffix from the NGU class take their concord from the 'O class. The class concord **ⁿgu** has become taboo because it sounds too much like the word **ⁿguugu** 'clitoris, vagina'. This has led to the shift in the class concord from the NGU class to the 'O class. This taboo and the related shift in the class concord exists also in Fuuta Tooro and Jenngel (Tioulenta 1991:200-201). Only a few words denoting female genitals can be referred to with the class concord **ⁿgu**. The following words all come from the NGU class but they take the concord from the 'O class. The only evidence found in Maasina that they came from the NGU class is found in the final vowel **-u** and the initial prenasalized consonant. The most important evidence for a historical affiliation of these words with the NGU class comes from a comparison of the behaviour of these nouns in Maasina with their behaviour in other Fulfulde dialects where they are still used with the concord of the NGU class.

ᵐbaalu / baali	'sheep'
ⁿjillu	'mixture of rice and fresh fish'
ⁿduuɓu / duuɓi	'year'
malu / mali	'luck, good fortune'
ɲaaku / ɲaaki	'bee'
ⁿdimu / dimi	'thoroughbred'
ⁿdonu	'inheritance, legacy'

These words are further discussed in the section on the NGU class (7.2.7).

Second, words with a suffix of the KA class are frequently referred to with the concord of the 'O class. In Maasina the number of words remaining in the KA class seems smaller than ten. A number of words show variation, i.e. they are sometimes used with the concord of the 'O class, sometimes with the concord of the KA class. These words appear in some other dialects with the concord of the KA class (see section 7.2.13).

gɔɔⁿga	'truth'
hɛrsa	'shame, modesty, reserve'
kɔrsa	'affection, love'
janta	'history, legend'

The word **naawalla** 'pain' ending in **-alla** is found in the KA class in Aadamaawa (Klingenheben 1962:105). The (double) suffix **-alla** is used in Maasina to derive nouns from stative verbs. In Maasina these nouns ending in **-alla** use the concord from the 'O class. The word **naawalla** uses the concord **ʔɔ** also in Niger and in Burkina Faso according to Zoubko (1980:366).

ɓuuɓalla	'coldness'
naawalla	'pain'
tiiɓalla	'difficulty'
gimᵐballa	'Gimmballa (region in Mali)'

The nominal suffix **-alla** is perhaps a double suffix combining the suffix of the NGAL class with the suffix of the KA class.

Third, the suffix of the NGE class also occurs sometimes with nouns that take the concord of the 'O class.

tɔɔɲaŋⁿgɛ / tɔɔɲaŋⁿgeeji	'insult'
yaŋⁿgɛ / yaŋⁿgeeji	'celebration, ceremony'

The use of the concord **ⁿgɛ** in other dialects is an indication that these words once belonged to the NGE class. These words are further discussed in the section on the NGE class (7.2.5).

Fourth, a few nouns with a suffix of the plural 'DE class use the concord of the 'O class. These nouns express uncountable concepts.

gɛɛsɛ bojel	'cobwebs' (lit: threads of hare/rabbit)
gaccɛ	'reservedness, modesty, scruple'
sɛmtɛ	'shame, embarrassment'

The expression **gɛɛsɛ bojel** 'cobwebs' literally refers to a plural "threads of hare/rabbit". The meaning of the compound has a collective aspect. Some of the nouns with a suffix of the 'DE class using the concord of the 'O class are abstract nouns which do not have a singular/plural opposition. Perhaps the nouns have moved from the 'DE class because of a clash between the singular meaning as a collective or abstract of these nouns and the plural meaning of the 'DE class. Nevertheless, a number of abstract nouns can be referred to with the concord of the 'DE class (see section 7.4.3).

7.2.1.8 'O CLASS NOUNS WITHOUT A CLASS SUFFIX

A typical noun formation used to denote the inhabitants of a certain geographical zone is the nominal suffix **-ŋkɛ** which is borrowed from the Mande languages, possibly from Soninke. The following word with the nominal suffix **-ŋkɛ** is a loan-word from Soninke (Tioulenta 1991:349).

kaanaŋkɛ / kaanaŋkɔɔɓɛ	'chief, leader'	Son.: **kaanãnke**

The words with the suffix **-ŋkɛ** probably ended up using the concord of the 'O class because of the feature [human] in their semantic content. The affix **-ŋkɛ** indicates a person who is associated with or belongs to a place or a group.

fuutaŋkɛ / fuutaŋkɔɔɓɛ	'person from **fuuta** (Fuuta Tooro)'
kunaariŋkɛ / kunaariŋkɔɔɓɛ	'person from **kunaari**'
maasinaŋkɛ / maasinaŋkɔɔɓɛ	'person from **maasina**'
sɛɛnɔŋkɛ / sɛɛnɔŋkɔɔɓɛ	'person from **sɛɛnɔ**'

The nominal suffix is also used to denote ethnic affiliation.

hawsaŋkɛ / hawsaŋkɔɔɓɛ	'Hausa (person)'
bamanaŋkɛ / bamanaŋkɔɔɓɛ	'Bambara (person)'
julaŋkɛ / julaŋkɔɔɓɛ	'trader, Jula (person)'

The Jula are an ethnic group belonging to the Mande group who are seemingly associated with trading. The same name is found in the word **julaajɔ** also meaning 'trader'.

The noun suffix **-ŋkɛ** 'person of' is also used to denote professional affiliation. In combination with the names of certain types of herds it names the 'herdsman' of that type of herd.

ben^{n}diŋkɛ / ben^{n}diŋkɔɔɓɛ	'herdsman of **ben^{n}di**'
garciŋkɛ / garciŋkɔɔɓɛ	'young herdsman, who guards **garci**'

The suffix of these words **-ŋkɛ** is probably borrowed from Soninke but it is applied to Fulfulde nouns. Klingenheben (1963:155) gives an extensive list of nouns formed with this morpheme **-ŋkɛ** in the Aadamaawa dialect. In this dialect these words are further expanded with the suffix **-jɔ**.

Aadamaawa:	**hawsaŋkeejo / hawsaŋke^{ʔ}en**	'Hausa'
	yarbaŋkeejo / yarbaŋke^{ʔ}en	'Yoruba'
	defteriŋkeejo / defteriŋke^{ʔ}en	'civilized person' < **dɛftɛrɛ** 'book'

The formation with the morpheme **-ŋkɛ** appears to be more productive in Aadamaawa than in Maasina.

A large number of nouns which use the concord of the 'O class are loan-words. Some loan-words are integrated into other classes on the basis of the analogy between the last syllable of the loan-word and the form of the class suffix (Tioulenta 1991:175-178).

lopital ^{n}gal	'hospital'	< Fr.	**l'hôpital**
kamsel ^{n}gel	'dress'	< Fr.	**camisole**
butel ^{n}gel	'bottle'	< Fr.	**bouteille**
masiri ^{n}di	'adornment'	< Bmb.	**màsírí**
jatɛ ɗɛ	'count'	< Bmb.	**jàté**

A loan-word may also be integrated taking on an analogical suffix, i.e. receiving an additional Fulfulde class suffix on semantic grounds (Tioulenta 1991:173). Tioulenta demonstrates the semantic analogy between individual words of a certain class. The hypothesis is that the allocation of these loan-words to a certain class only takes place when its meaning is in accordance with the larger semantic groupings within that class. The specific semantic associations that are responsible for the class suffixes of the loan-words below are given in square brackets.

buuseejɔ ^{ʔ}ɔ	'butcher'	< Fr.	**boucher**	['O: human]
sulɛɛwɔ ^{n}gɔ	'shoe'	< Fr.	**soulier**	[NGO: footwear]
banikɔnɔwal ^{n}gal	'stork'	< Bmb.	**bàníkònó**	[NGAL: big bird]
tigaarɛ ^{n}dɛ	'peanut'	< Bmb.	**tìgá**	[NDE: fruit]
galmaarɛ ^{n}dɛ	'spoon'	< Bmb.	**gàlàmá**	[NDE: utensil]

Most loan-words however have not been given a class suffix and use the concord of the 'O class. The choice of the 'O class as the concord for the loan-words without a suffix is possibly motivated by the occurrence of other nouns without a suffix in that class such as the inalienable forms of the kinship terms like **ɓii** 'child' and **^{ʔ}abba** 'father', and a few words like **suka** 'young person', **surba** 'nubile girl'. There have also been speculations about the semantic connotation of the 'O class to explain the large number of loan-words in this class.

Labatut (1982a:79) proposes to consider the 'O class a non-class, a sort of meta-class whose words escape from being classified, since the content of this class (human beings and God) are classifying subjects themselves. Labatut suggests that the words in the 'O class defy classification like loan-words do.

The hypothesis proposed in this thesis is also based on the semantic grouping of human beings and God with the class suffix of the 'O class. But the hypothesis advanced here is based on a different semantic interpretation of the 'O class concord. The semantics of the class suffix of the 'O class groups nouns denoting "persons". The human content of the nouns with this class suffix gives this class a honorific connotation. By honorific connotation is meant that the content of this class is considered valuable. The human beings described by the words in this class are esteemed and valued, they are held in high esteem. This can be supported by the fact that a number of nouns denoting human beings with a pejorative connotation are found in other classes such as NDU, NDI and NDE.

The concord of the 'O class has extended its semantics: it also groups loan-words and some nouns from other classes. The concord of the 'O class has extended its semantics in the following way: the honorific connotation of the 'O class made this class perfectly suitable to host the loan-words from Arabic. These Arabic words often concern concepts of Islam, a religion very much esteemed by the Fulbe. The Arabic loan-word **ʔalla** 'God' is integrated into the class of human beings which are held in high esteem, because God is also held in high esteem. Therefore names for God, like human beings, are assigned to the class with a connotation of high esteem.

ʔalla	'God'
ʔuraʔaana	'Koran'
ʔalsilaamɛ / ʔalsilaamɛʔɛn	'Muslim'
malaaʔika / malaaʔikaʔɛn	'angel'
hakkɛ / hakkeeji	'sin, fault'
farilla / farillaaji	'duty, obligation'

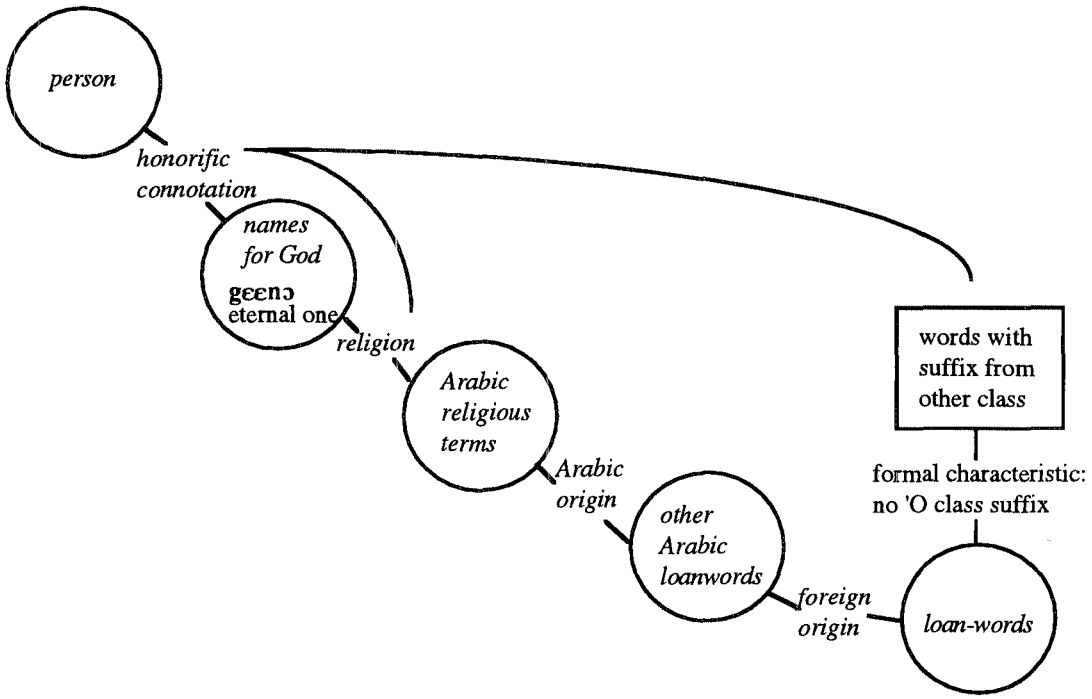
Other loan-words from Arabic also use the concord of the 'O class on analogy with the Arabic religious terms.

biliisa	'nervousness < Ar. **kbilis** 'devil'
satalla / satalleeji	'water kettle for cleansing oneself'
miskiini / misikim-ɓɛ	'poor person'
wakkati	'time, moment'
sikkɔrɔ	'sugar'
dawla / dawlaaji	'honour, popularity'
ʔaduna	'world'
fayda / faydaaji	'respect, importance'

Other loan-words use the concord of the 'O class on analogy with Arabic loan-words. In the Maasina dialect, many loan-words come from French, Bambara, and Soninke.

French:	**ʔalmeeti**	'match'	**allumette**
	butel / butelaaji	'bottle'	**bouteille**
	wɛɛr	'glass'	**ver**
	mɛɛtɛrɛ / meeteruuji	'meter'	**mètre**
	seesi / seesiiji	'chair'	**chaise**
Bambara:	**ku**	'yam'	**ku**
	barma	'metal cooking pot'	**barma**
	baka	'indigo'	**baga**
	maafɛ	'sauce'	**maafɛ**
	buuru / buruujɛ	'bread'	**mburu**
Soninke:	**futtɛ / futteeji**	'wedding present, from his to her family'	
	sɔgɔnɛ / sogoneeji	'elbow'	
	jakawallɛ	'metal, yellow coloured like copper'	
	kaŋŋɛ	'gold'	
	kammu	'sky'	

The following semantic network is proposed for the 'O class.



The honorific connotation of the 'O class can also explain the shift to the 'O class of taboo noun classes such as NGU and probably some pre-Islamic terms in the NGE class concerning the supernatural (see also Mukarovsky 1962b). The change in class from NGU to 'O cannot be more effective than when the negatively conceived taboo concord of the NGU class is replaced by the concord of the 'O class with its respectable, honorific connotation. Loan-words from other languages have imitated the movement of the Arabic loan-words into the 'O class. Thus, the concord of the 'O class has shown the broadening of its contents covering meanings from humans to honorific to Islamic terms to Arabic terms to loan-words.

The meaning of the class suffix still covers only human beings. The expansion of the set of words which use the concord of the 'O class suffix, which historically referred to persons only, is represented in the above semantic network.

The plural formation of the nouns in the 'O class also distinguishes human beings from loan-words that are not human. Human beings in the 'O class take the plural **ɓɛ** or sometimes **ʔɛn**. Loan-words in the 'O class that are not human take the plural suffix form **-ji**. There are quite a number of words that take the concord of the 'O class which end in a vowel that cannot be the class suffix of 'O, nor can this vowel belong to one of the classes that changed its concord to 'O because of taboo or other reasons. The plural formation lengthening the final vowel and combining with the plural class suffix **-ji** indicates that these words should be considered to be loan-words. A number of them were not included in the lists of loan-words from Bambara, Soninke, and French occurring in the Maasina dialect as described by Tioulenta (1991). From their appearance however they should be classified as loan-words. The languages from which these words are borrowed are not known at this stage.

bagi / bagiiji	'cloth, textile material'
sakiikɛ / sakiraaɓɛ	'related person'
jɔkɔllɛ / jɔkɔlɓɛ	'young adolescent man'
nɔɔnɛ / nooneeji	'character'
sakkɛ / sakkɛɛɓɛ	'leather-worker'
takkalɛmmɛ / takkalɛmɓɛ	'neighbour'
tɔmɔttɛ / tɔmɔttɔɔɓɛ	'human being'
tɛɛfɛ	'saddlecloth, shabrack'
kirɛ	'metal, red coloured like copper'
kirkɛ / kirkeeji	'saddle (leather)'
kaŋkasi	'aluminium'
poki / pokiʔɛn, pokiiɓɛ	'dirty person'
burdaamɛ / burdaaɓɛ	'Touareg'
disa / disaaji	'decorative scarf for a man's neck'
si	'kind, characteristic, colour'

There are a number of nouns derived from adverbs of time that take the concord of the 'O class.

jamma / jammaaji	'night'
ɲalɔɔma / ɲalɔɔmaaji	'daytime'

These adverbs are temporal predicates: they are derived from conjugated verbs and they still carry verbal inflections like **-ma** of the indefinite conjugational suffix (see section 5.4.9).

Another set of nouns occurring with a concord of the 'O class are the compound nouns based on the morpheme **jɔɔm** 'owner of' which is often shortened to **jɔm**. Such a noun denotes a human being (sometimes God), so it also uses the concord of the 'O class for semantic reasons.

jɔm-sɛm^{m}bɛ, jɔ̃sɛm^{m}bɛ	'strong person'
jom-suudu / jom-suudu^{ʔ}ɛn	'partner'
jɔm-gallɛ	'head of the compound'

Concluding the discussion on the nouns occurring in the 'O class one could say that they can be divided into two subsets. The nouns that take a class suffix of the 'O class all denote human beings. They take their plural from the 'BE class. Another set of nouns in the 'O class have no suffix. They are mostly loan-words. Their affiliation with the 'O class is motivated by the honorific meaning attached to human beings in the 'O class. This supposes that the Arabic loan-words denoting the highly esteemed Islam entered the 'O class because of its honorific meaning. This has a consequence for the dating of the loan-words. It supposes that the Arabic loan-words arrived before the loan-words from Bambara and French. It would suggest that Soninke loan-words that entered the language before the arrival of Arabic did not take the concord of the 'O class. Many forms of the list of Soninke loan-words (Tioulenta 1991:347) are indeed integrated into other Fulfulde classes but this hypothesis needs further verification.

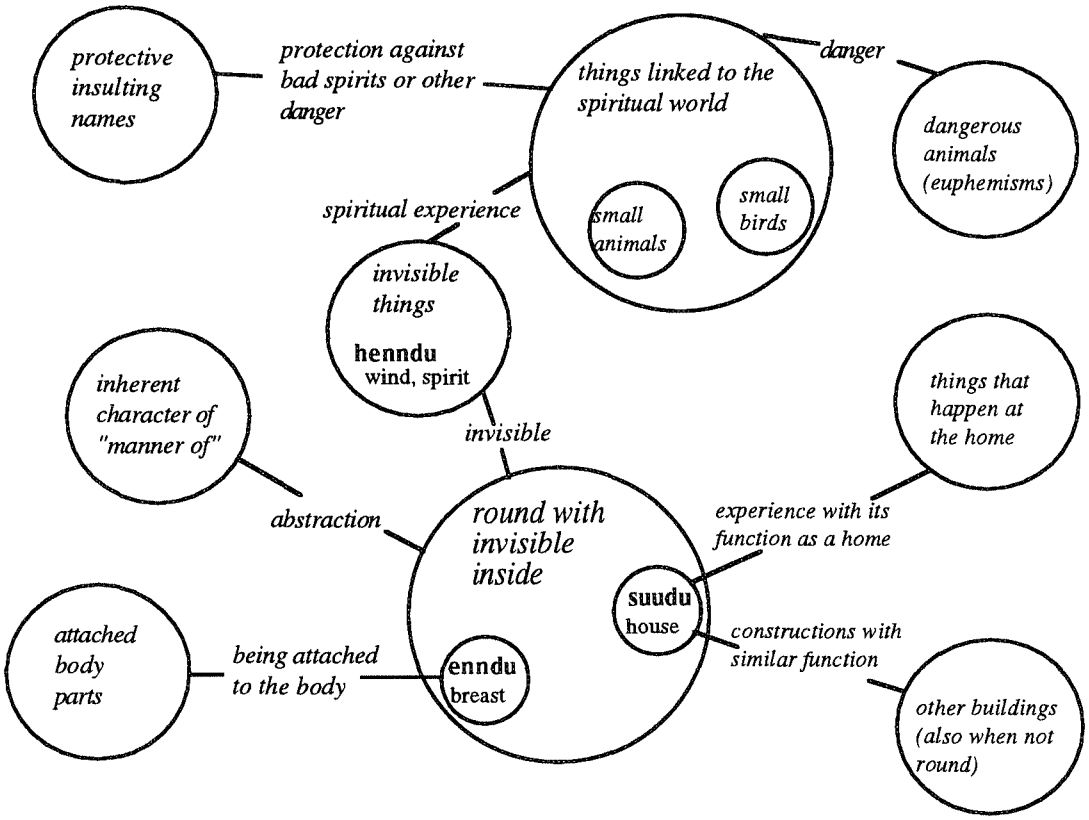
7.2.2 THE NDU CLASS

The semantic content of the words in the NDU class appears to be centered around the concept of a round and hollow form. Many objects in the NDU class are round and have a round hollow space inside which is not directly visible from the outside. Arnott (1970a:75) makes a similar observation when he lists the NDU class as containing circular and cylindrical objects. Words like belly, moon, gourd, mortar, house, pit, pond, and lute have an inside. These objects are sometimes hollow, but the presence of an inside is more recurrent. The word **ʔen^{n}du** 'breast' shares the features round with an inside (milk) with other members of the NDU class. The word **ʔen^{n}du** 'breast' serves as a bridging context between two semantic domains: round entities with an inside and attached body parts. Other attached body parts in the NDU class are hair, lips, finger and toes. The word **suudu** 'house, shelter' which describes a traditionally round structure with an inside motivates the association of the categories of buildings (even when not round) and affairs of the home with the NDU class.

An entity with a hollow shape has an invisible inside. Words for **hen^{n}du** 'wind, spirit' and **jinnaaru** 'spirit' are also in the NDU class. They appear to be grouped here because of their invisible nature. Spirits are known to be invisible in the Fulbe society. One Pullo described spirits as "beings who are just like us, they eat from the same plate and they live in the houses like ours, the only difference is that they are invisible". This invisible aspect links a number of nouns related to the spiritual world with the NDU class. Other spirit-related terms are amulet, staff, and the pejorative names which are given to protect its bearer from evil spirits. Birds are related to spirits because they can have the same effect on people. The Fulbe say that bad spirits and some birds can cause children to die and they can cause people to become very ill or to become mad. The category of small birds is extended to small animals. Dangerous animals are also in the NDU class, they are often euphemisms. Pretending that dangerous animals are like small animals might be an attempt to diminish their capacity to do evil. Dangerous animals could also be in the NDU class because they are thought of as a possible disguise of evil spirits.

The formation of verbal nouns with the suffix **-du** expressing "manner of" describes the inherent character of action signalled by the verb stem from which the manner noun is derived. This inherent aspect is associated with the meaning "inside" of the NDU class. The word **ɲaamⁿdu** meaning both 'manner of eating' and 'food' is derived from such a verbal noun describing "manner of doing something".

The scheme below can explain the semantic association of many words which occur in the NDU class. The link between the spiritual world and the subcategory of small animals is not entirely clear because of a lack of knowledge about what belongs to the spiritual world of the Fulbe. Also the occurrence of some words in the NDU class is not yet clear, words like **ɓoyru** 'cough', **duniyaaru** 'world', **kabaaru** 'news' **kurfenⁿdu** 'fan'. The schema obviously can be improved with a better understanding of the culture of Fulfulde speakers. The main point shown here is that the semantic associations that do occur group some nouns in a convincing semantic way which implies that the grouping is not arbitrary or just due to coincidence. The following picture represents a proposal for the network of semantic associations of the NDU class.



round + invisible inside		*attached body parts*		*invisible/spiritual world*		*small birds*	
wowru	mortar	**sal^{n}du**	limb	**hen^{n}du**	wind, spirit	**foo^{n}du**	bird
hoddu	lute	**howru**	knee	**jinnaaru**	spirit	**baaɲaaru**	cowbird
ɓun^{n}du	well	**ton^{n}du**	lip	**lewru**	moon		
huseeru	stomach	**suku^{n}du**	hair	**foondu**	dove	*small animals*	
wuddu	navel	**feɗee^{n}du**	finger	**sawru**	staff	**faa^{m}buru**	frog
reedu	belly	**holɓu^{n}du**	ankle	**talkuru**	amulet	**doo^{m}buru**	mouse, rat
nowru	ear					**huuɲaaru**	tortoise
fulkuru	bladder	*home affairs*		*pejorative names*		**muusuuru**	cat
ʔen^{n}du	breast	**ʔegguru**	migration	**waɲaa^{n}du**	ugly one	**rawaa^{n}du**	dog
suudu	house	**lamru**	baptism	**dikkuru**	eldest one		
						dangerous animals	
inherent character		*buildings*				**laddeeru**	lion
"manner of"		**jaŋ^{n}girdu**	school			**suu^{n}du**	jackal
ɲaam^{n}du	manner of eating; food	**dam^{m}bordu**	wedding house			**saafaa^{n}du**	leopard
						fowru	hyena

All nouns in the NDU class are characterized by a suffix of the NDU class marker. All nouns belonging to the NDU class use suffix forms of the NDU class marker as their concord. The same forms of the suffixes of the NDU class appear as class markers on nouns or as concords on modifiers. This section describes the NDU class suffixes occurring on nouns. The concord is treated in chapter 8. The suffixes that are found in words that belong to the NDU class have the forms **-uru**, **-ru**, **-du**, and **-^{n}du**.

Arnott allocated these forms to four different "grades" (as shown in Chapter six). The allocation of a suffix form to a particular grade was decided on the basis of the form of the initial consonant and on the basis of the behaviour of the stem in combination with other class suffixes. This was done according to the principle that one stem should occur only with suffixes of one grade. The examples in the following table are taken from the Fulfulde of Maasina allocated to the different grades following Arnott's principles.

suffix form	grade A	grade B	grade C	grade D
-uru	**talk-uru** (pl. **talk-i**) 'amulet'			
-ru	**wow-ru** (pl. **boɓ-i**) 'mortar'	**jinnaa-ru** (pl. **jinnaa-ji**) 'spirit'		
-du	**ʔelelel-du** (pl. **ʔelelel-i**) 'flat headed snake'		**jaŋ^{n}gir-du** (pl. **jaŋ^{n}gir-ɗi**) 'school'	
-^{n}du	**ton-^{n}du** (pl. **ton-i**) 'lip'		**ɲaam-^{n}du** 'food'	**ʔen-^{n}du** (pl. **ʔen-ɗi**) 'breast'

The different suffix forms in grade B, C, and D are identical to the phonologically conditioned suffix forms of grade A. Nevertheless, they must be analyzed with an

independent meaning resulting from a merger between the class marker and the grade markers. The underlying forms of the different suffix forms of the NDU class are given below.

*ru >	-uru after obstruent -ru after vowel -du after [r, l] -ⁿdu after [n]	objective word derivation: object/thing when attached to a nominal stem, unmarked/cognate object when attached to a verbal stem
*ɥ-ru >	V-ru	preceded by long vowel attached to full word, associative derivation: "thing belonging to the NDU class associated with a semantic feature of noun stem"
*r-ru >	-du -ⁿdu after nasal	circumstantial derivation, attached to verbal stem, indicating purpose, intention, mode, productive meaning "manner of" as marker of verbal nouns
*n-du >	-ⁿdu	subjective derivation, attached to verbal stem followed by verbal marker

This analysis differs from that presented by previous authors who discussed the grade system in giving independent semantic status to the suffixes characterizing the different grades. The independent semantic status does not imply that the different suffix forms are monomorphemic. Their underlying structure can contain two morphemes: the class marker and the grade marker. Only the suffix of the objective word derivation (grade A) is monomorphemic. It is characterized by the absence of a grade marker and consists only of the class marker (see chapter 6).

Examples of the verb root **laɓ-** 'shave' combining with all the different underlying suffix forms of the NDU class demonstrate the independent status of the four suffix forms. The different types of word derivation are further explained and exemplified in the sections below.

	laɓ-	'shave'
grade A: objective	**lam-ru**	'naming feast when baby is shaved'
grade C: circumstantial	**laɓ-u-du**	'manner of shaving'
grade B: associative	**laɓ-oo-ru**	'NDU who is shaving'
grade D: subjective	**laɓ-u-ⁿdu**	'NDU who has shaved'
	laɓ-aa-ⁿdu	'NDU who has been shaved'

The analysis proposed arrives at a four-way distinction between the class suffixes, like Arnott and Klingenheben. The difference is that formerly these grades were merely distinguished on the basis of their form and complementary distribution. An investigation of the possible meaning of the class suffixes has also revealed the meaning of the four suffix forms. Different semantic word derivations must be attributed to the four suffixes. The true status of the different suffixes is established by combining the study of form with the study of meaning. The four suffixes are distinctive poly-morphemic forms combining the independent meaning and form of the grade marker with the independent meaning and form of the class marker.

7.2.2.1 THE GRADE A SUFFIX FORMS **-uru -ru -du -ⁿdu**

As stated above, all possible suffix forms occur as phonologically conditioned allomorphs of the suffix form ***ru** in grade A. The allomorph **-uru** is always found after stems ending in two consonants and after stems ending in one consonant which is an obstruent. The vowel initial allomorph prevents ill-formed syllables because a syllable should not end in two consonants and the syllable coda cannot be less sonorant than the onset of the next syllable.

dooᵐb-uru / dooᵐb-i	'rat, mouse'
ˀegg-uru	'move, migration'
siŋ-uru	'civil wedding ceremony' < Fr. **signer**, **signature**

The allomorph **-uru** is regarded as being made up of the suffix ***-ru** preceded by an epenthetic vowel which has assimilated totally to the vowel in the class suffix **-ru**. For this reason Arnott did not treat **-uru** as a separate allomorph of the NDU class suffix but as **-u-ru**: the suffix **-ru** preceded by an "anaptyctic" vowel. Although the first vowel is put between hyphens, used to indicate a morpheme boundary, it is not clear whether Arnott gives this [**u**] vowel the status of a morpheme. The hyphens in his example **wukk-u-ru** 'bunch' (Arnott 1970a:55) probably indicate that the "anaptyctic" [**u**] belongs neither to the morpheme of the stem, nor to the morpheme of the suffix. In this study, the suffix form **-uru** will be considered as one indivisible form even though historically its first vowel is derived from an epenthetic vowel which has assimilated to the vowel in the following syllable.

The allomorph **-ru** occurs after stems ending in a single consonant that is [+continuant]. The stems found in Maasina with the allomorph **-ru** in grade A all end in the consonants [**w**], [**y**], and in [**m**]. These are the only consonants that can appear before [**r**] according to the sonority hierarchy (see section 4.4.4).

saw-ru / cabbi	'stick'
wow-ru / boɓi	'mortar'
now-ru / noppi	'ear'
how-ru / koppi	'knee'
ɗoy-ru	'cough'
lam-ru	'name giving ceremony'

A [+continuant] consonant whose appearance before [**r**] would violate the sonority hierarchy can be shown to change to one of the above mentioned permissible glides [**w**] and [**y**]. For example: The stem **nɔf-** ends in a continuant and combines with the allomorph **-ru**. This would result in the ill-formed sequence ***fr** which would violate the sonority hierarchy. A repair rule changes the syllable final [**f**] to [**w**] (see section 4.5.2).

***nof-ru > now-ru** 'ear'	cf. **nof-el** 'little ear'
***hof-ru > how-ru** 'knee'	cf. **kof-el** 'little ear'

Evidence for an underlying stem final [**f**] is found in the combination of the stem with the diminutive suffixes where the stem final [**f**] appears on the surface. The word **howru** 'knee'

is derived from the verb **hofudɛ** 'to bend' with the objective word derivation of grade A. The word **howru** 'knee' is paraphrased as the object of bending.

The allomorph **-du** occurs after the alveolar consonants [**l**] and [**r**]. Onset strengthening occurs to prevent the ill-formed sequence ***lr** changing the suffix initial consonant of ***-ru** to [**d**].

wor-du / gor-i	'thumb'
ʔelelel-du / ʔelelel-i	'flat headed type of lizard'

The allomorph **-ⁿdu** in grade A of the class suffix NDU is always preceded by a stem ending in an alveolar nasal consonant [**n**]. The prenasalized allomorph **-ⁿdu** results from onset strengthening of the suffix initial consonant in ***-ru** to [**d**]. This rule repairs the sonority hierarchy of the incorrect sequence ***nr**. In addition, this suffix initial voiced plosive [**d**] has become prenasalized after a nasal.

hen-ⁿdu / ken-i, ken-uuli	'wind, spirit'
ton-ⁿdu / ton-i, ton-ɗi	'lip'

There is confusion about the analysis of the two words above. The word **tonⁿdu** is classified as grade A by Arnott (1970a:123), it is classified as grade C by Klingenheben (1963:62). These different analyses indicate that the criteria for the different grades are not very clear. Arnott and Klingenheben base their analyses on the plural forms. Alternative plural forms for this word occur in Maasina. The plural forms in the different dialects show that a reanalysis of these words has been going on.

	Maasina	Klingenheben's Aadamaawa	Arnott's Gombe
'thumb'	**wor-du / gor-i**	**wor-du / gor-ɗi**	**wor-du / gor-ɗi**
'lip'	**ton-ⁿdu / ton-i, ton-ɗi**	**ton-ⁿdu / ton-ɗi**	**ton-du / ton-i**
'wind'	**hen-ⁿdu / ken-i**	**hen-ⁿdu / ken-i**	**hen-ⁿdu / ken-i**
'breast'	**ʔen-ⁿdu / ʔen-ɗi**	**ʔen-ⁿdu / ʔen-ɗi**	**ʔen-ⁿdu / ʔen-ɗi**

In this study the words **wor-du** 'thumb', **ton-ⁿdu** 'lip', and **hen-ⁿdu** 'wind' are all analyzed as grade A words, the word **ʔen-ⁿdu** 'breast' is analyzed as a grade D word. This analysis differs from previous ones because the automatic prenasalization rule applied to voiced plosives after a nasal is not accepted by some authors.

Arnott's analysis of the word **ton-ⁿdu** is "**ton-du**". He considers this stem to end in a single nasal [**n**] and the suffix to start with a (not prenasalized) voiced plosive [**d**]. He has morphological reasons for this analysis. Recall that Arnott's grade A only contains the allomorphs **-ru** and **-du**. Arnott places the suffix of the word "**ton-du**" 'lip' in grade A because of the pairing with the grade A suffix form **-i** in the plural **ton-i**. He assumes that the underlying form of the suffix is ***ru** which becomes **-du** on the surface after the stem final [**n**] in "**ton-du**" (his orthography). The axiom that one stem should combine with suffix forms of only one grade compels Arnott to analyze the nasal plosive sequence in **ton-ⁿdu** as **n-d**. In Arnott's analysis, the prenasalized suffix form **-ⁿdu** is analyzed as a grade D suffix.

(Grade D words take the plural suffix form **-ɗi**.) This assumption is true for a grade D word like **ʔen-ⁿdu** 'breast' with the plural form **ʔen-ɗi**. However, the suffix form **-ⁿdu** is also found in paradigms of other grades. Analyzing the suffix **-ⁿdu** as grade D in the paradigm: **hen-ⁿdu** 'wind' **ken-i** 'winds', **ken-el** 'little wind', **ken-on** 'little winds' contradicts the rule that one stem combines with one grade. Arnott (1970a:120) does not have to analyze this paradigm as grade A with an exceptional grade D singular form **hen-ndu** 'wind' when this singular form can be explained by a rule of head strengthening (see section 4.5.1) and automatic prenasalization (see section 2.3.3).

Klingenheben (1963:62) puts the word **ton-ⁿdu** in his third grade ["dritte Stufe"] which is equal to Arnott's grade C. He describes the automatic phonetic rule of prenasalization and he represents the prenasalization of a voiced plosive consonant after a nasal consonant in his orthography. The (underlying) form of the NDU class suffix in grade C is **-du**, also in Klingenheben's analysis. One could infer that he sees **-du** as the underlying form of the suffix in the words **ʔen-ⁿdu** 'breast' and **ton-ⁿdu** 'lip' which he analyzes as grade C. The reason why Klingenheben puts **ton-ⁿdu** in grade C is its plural **ton-ɗi** in Aadamaawa. This is in agreement with the general principle that one stem combines with one grade, because **-ɗi** can only be the plural suffix of grade C and grade D words. The following table summarizes the analyses of the words **hen-ⁿdu** 'wind', **ʔen-ⁿdu** 'breast', and **ton-ⁿdu** 'lip' by Arnott and Klingenheben.

Arnott:	grade A	/hen/ + /ru/	> [hen-ⁿdu]	'wind'
	grade A	/ton/ + /ru/	> [ton-du]	'lip'
	grade D	/ʔen/ + /ⁿdu/	> [ʔen-ⁿdu]	'breast'
Klingenheben:	grade C	/ton/ + /du/	> [ton-ⁿdu]	'lip'
	grade C	/ʔen/ + /du/	> [ʔen-ⁿdu]	'breast'

A comparison of the suffix forms in words of the same paradigm is an important diagnostic for determining the grade of the singular class suffix. The different plural forms **ton-i**, **ton-ɗi** 'lips' show that reanalysis is taking place in the different dialects. Perhaps the grade A plural form **ton-i** 'lips' has been replaced by the grade D plural form **ton-ɗi** 'lips' in an effort to keep a clear-cut relation between the surface suffix form and the suffix grade: paradigm levelling from the singular-plural suffix pair **-ⁿdu/-i** to **-ⁿdu/-ɗi**.

The determination of the grade of a suffix has also been complicated by the mixing of both underlying and surface forms of the suffixes as classifying entities for the different grades. In the case of a combination of a stem ending in an alveolar nasal [**n**] with a class suffix beginning with any of the consonants {**r**V, **d**V, ⁿ**d**V}, the rules of prenasalization and onset strengthening always result in the same surface form: [**n-ⁿd**V], a so-called geminate prenasalized alveolar consonant. So it is not possible to deduce the "underlying allomorph" of the class suffix from the surface form, if such a concept could exist. There is also a theoretical objection to the construction of "underlying allomorphs". Only a morpheme, and only one morpheme, can underlie allomorphs. If different underlying forms have to be constructed for the derivation of different suffix forms at the surface, then they are no longer allomorphs but different morphemes. And with the recognition of the grade marker, the suffix forms found in the different grades are indeed morphologically distinct.

7.2.2.2 THE GRADE B SUFFIX FORM **-ru**

The suffixes of the NDU class in grade B are preceded by the associative grade marker ***ɥ**. This grade marker is most often realized by the lengthening of the stem final vowel. The stems in grade B words are full words. The grade B words express any meaning associated with the NDU class (as portrayed in the semantic network), which has a semantic association with the noun that serves as its stem.

santaa-ru / santaa-ji	'older Koran student'
bolii-ru / bolii-ji	'bottle shaped calabash'
fusunaa-ru / fusunaa-ji	'young Koran student'
buguu-ru / buguu-ji	'grass hut'
goŋⁿgoo-ru / goŋⁿgoo-ji	'barrel'
duniyaa-ru	'world'

Many of the above words are loan-words integrated into the NDU class by the suffix of the associative word derivation. The Bambara word **búgú** 'grass hut' (Tioulenta 1991:330) is integrated to the NDU class because it describes a kind of house. Thus, a **buguuru** 'grass hut' can be paraphrased as "a house like a grass hut". The association between the derived nouns and the words which serve as the stem using the associative word derivation is mostly complete. The barrel **goŋⁿgooru** seems to be a word where the association between the stem and the word formed with it is not complete. Possibly, it can be paraphrased as "round thing with inside associated with the sound **gɔŋⁿgɔ** (that it makes when it rolls or when it is beaten)".

7.2.2.3 THE GRADE C SUFFIX FORM **-du**

Nouns with a suffix allomorph of grade C combine with the grade marker of the circumstantial word derivation. The circumstantial grade marker ***r** is derived from the same form as the circumstantial extensions **-ir-** or **-r-**. The following nouns are derived from verb stems that contain circumstantial extensions **-ir-** or **-r-** in combination with the middle voice marker **-ɔ-**. They describe locations or instruments. The verb stem in these nouns expresses the purpose of those places or instruments, it indicates what they are used for.

jaŋⁿgirdu / jaŋⁿgirɗi	'school'	**jaŋⁿg-u-dɛ**	'to learn, to read'
damᵐbordu / damᵐborɗi	'wedding house'	**damᵐb-aa-dɛ**	'spend honeymoon'
sappordu	'index finger'	**sapp-aa-dɛ**	'to point'
looŋordu	'iron peg, prevents cloth beam from unrolling'		

The suffix **-du** expressing purpose or manner can also be found attached to verb stems without the actual presence of the circumstantial extension in the stem.

hod-du / kolli	'lute'	**hoɗ-u-dɛ**	'play on strings'

Klingenheben (1963:64) suggests a relation between the word **hoddu** 'lute' and the verb stem **hɔɔl-** 'to make noise' in Aadamaawa. Tioulenta (1991:302) proposes a link between is and the verb stem **hɔɗ-** 'to play a stringed instrument'. The latter etymology is more likely.

The meaning of the stem combined with the meanings of the circumstantial extension and the class marker result in a paraphrase of **hoddu** 'lute' as "round thing with inside (NDU) for the purpose of (***r**) playing its strings (**hɔɗ**-)".

The hypothesis is that the suffix form **-du** is phonologically conditioned by the occurrence the circumstantial grade marker ***r** before the underlying form ***-ru**. This suffix form **-du** carries the meaning of both the NDU class and the circumstantial grade marker.

The paradigms of the words **suudu** 'house' and **reedu** 'belly' seem to combine with both vowel initial suffixes of the objective word derivation (grade A) and with suffixes of the circumstantial word derivation (grade C). The final consonant alternation of their stems indicates that the (historical) derivation of this word is complicated.

suudu / cuuɗi	'house'	**reedu / deeɗi**	'belly'
cuur-el / cuur-oy	'little house'	**deer-el / ⁿdeer-oy**	'little bellies'
cuur-al / cuur-ɛɛlɛ	'big house'		

The word **suudu** 'house' is derived from the verb stem **suuɗ**- 'hide' with the suffix **-du** marking the circumstantial word derivation. Its underlying form is ***suuɗdu**. The stem final consonant [**ɗ**] has assimilated to the suffix initial consonant [**d**] resulting in the form ***suuddu**. The geminate consonant [**dd**] is shortened to avoid the marginal syllable structure CVVC. The meaning of **suudu** 'house, hut' must be paraphrased as "round thing with inside (NDU) for the purpose of (***r**) hiding or taking shelter (in it)". The word **reedu** 'belly' is related to the verb **reed-u-dɛ** 'to be pregnant'. Possibly the paraphrase of belly is "round thing with inside used for being pregnant". The diminutive forms of these two words are exceptional. The consonant [**d**] resulting from a merger between the stem final consonant and the suffix initial consonant has been reinterpreted as the stem final consonant. It changed to [**r**] as a result of weakening in inter vocalic position. The diminutive forms of **suudu** 'house' and **reedu** 'belly' have been reanalyzed as grade A forms.

There is a productive word formation with the suffix **-du**. The suffix **-du** is used to form verbal nouns which express the manner in which the action or process expressed by the verb is performed. The meaning "manner of" is a combination of the abstraction of the semantic association "inside" of the class marker NDU (inherent character) with the meaning of the circumstantial extension describing the purpose, intention or mode of a concept. The inherent mode of a verb is the manner in which the verb is performed.

dod-du	'run, course; manner of running'	**dog-udɛ**	'to run'
yaa-du	'walk, going, journey; manner of walking'	**yaa-dɛ**	'to go'

The word **doddu** 'course' has cognate forms in Pulaar [FT] **dogdu** and Aadamaawa **doggudu** that show the stem final [**g**] that has assimilated to the following [**d**] in Maasina to prevent the ill-formed sequence ***gd**.

Verbal nouns, such as the infinitive, always take the suffix with a plosive initial consonant of grade C. The form **-du** attached to verb stems forms a verbal noun indicating 'the way of, the manner of'. This regular derivation is also found in Pulaar which is described by Paradis (1986:50).

Pulaar	**yaadu**	'way of going, walk' ("marche")
	dogdu	'way of running; course'

The word **ɲaamⁿdu** 'food, staple food' in Maasina is explained by a semantic shift from the way of eating, via eating habits, to the food that is habitually eaten. The word **ɲaamⁿdu** denotes food that is the main staple, i.e. rice or millet. The suffix form **-du** of the circumstantial derivation is automatically prenasalized after a nasal consonant. So the suffix form **-ⁿdu** is here an allomorph of the suffix **-du**.

Maasina		Pulaar:	
ɲaamⁿdu	'food; way of eating'	**ɲaamdu**	'way of eating' ("manière de table")
ɲaamudɛ	'to eat'	**ɲaamde**	'to eat'
ɲaamri	'cereals; rice'	**ɲaamri**	'food'

The word **ɲaamⁿdu** has the meaning 'way of eating' in Pulaar. In Maasina the word **ɲaamⁿdu** has extended its meaning from 'way of eating' to 'food'. The meaning of the suffix **-du** as "way of, manner of" occurs in a regular derivation both in Fuuta Tooro and in Maasina. The word **ɲaamri** has the meaning 'food' in Fuuta Tooro. Its meaning has been specialized to 'cereals, especially rice' in Maasina. Possibly, the word **ɲaamⁿdu** has changed its meaning to 'food' after the word **ɲaamri** lost its general meaning for 'food' in Maasina. This supposes that a meaning extension from "how you eat" to "what you eat (habitually)" is a plausible semantic shift. The semantic shift of the word **ɲaamⁿdu** 'food' can explain why this meaning is difficult to place in the NDU class.

7.2.2.4 THE GRADE D SUFFIX FORM -ⁿdu

The suffix form **-ⁿdu** marks the subjective word derivation and is identical in form with the subject concord of the NDU class. Words derived using the suffix **-ⁿdu** describe the subject of the related verb. Transparent subjective word derivations are participles which can combine with all relative verbal conjugations and the past tense marker.

A number of nouns derived using the subjective word derivation have a meaning that is less transparent. Semantic shifts and/or loss of the related verb forms are thought to be responsible for this non-transparency. If analyzed correctly, some of the following words are rather cryptic paraphrases for the concepts they describe. This might be a reflection of former taboos in the Fulfulde society.

that which resembles (a human being):			
waaⁿdu / baaɓi	'monkey':	**waa-dɛ**	'to resemble'
that which is passed by in a course:			
rawaaⁿdu / dawaaɓi	'dog':	**raw-a**	'pass by in a course'
that which passes:			
salⁿdu / caldi	'body parts/body'	**sal-a**	'pass'
that which has been shown nails:			
saafaaⁿdu / caafaaɓi	'leopard':	**saaf-a**	'show nails'

that which has wings but not really (it can fly but has no feathers):

wilwil^{n}du / bilbilɓi	'bat'	**wil-e-wol**	'wing' [Nigeria]
that which is being buttoned (nail = button?):			
feɓ-ee-^{n}du / peɓeeli	'finger'	**feɓ-u-dɛ**	'to button'
that which springs water:			
ɓun-^{n}du / ɓul-li	'pit, well'	**ɓul-dɛ**	'to spring (of water)'
that which makes noise:			
hoo-^{n}du / kool-i	'finger'	**hɔɔl-a**	'make noise' [Aadamaawa]

The words **ɓun^{n}du** 'pit, well' and **hoo^{n}du** 'finger' show an assimilation of the stem final consonant [l] to the initial nasal part of the suffix -^{n}**du**. This is confirmed by the related forms **ɓul^{n}du** 'pit' in Aadamaawa and in Fuuta Jallon, and **hɔɔlgɔ** 'nail' in Maasina.

An indication that these words were taboo might be the number of synonyms that they have. Examples of synonyms for 'dog' are the words **bilaaru** and **rawaa^{n}du**. The words **calɗɛ** and **tɛrɗɛ**, plural forms of **sal^{n}du** 'member' and **tɛrgal** 'member', refer to the body. Wild animals like the lion and the hyena are often given many different descriptive and euphemistic names in the different dialects of Fulfulde. The lion is called **laddeeru** "dangerous animal of the bush" or **rawaa^{n}du laddɛ** "dog of the bush". The paraphrase for **saafaa^{n}du** 'leopard': "that which has been shown nails" could have described a claw, by metonymy the meaning of the claw might have been extended to the whole animal.

The speculations about these etymologies may be confirmed by future linguistic anthropological research into the cultural history of the Fulbe. Questions that need to be investigated from an anthropological point of view are whether the image of the dog is as slow as is suggested here, and whether a word like body is taboo. Informants in Maasina indeed often showed some shyness when I asked for the word for body. The position taken here is that the interpretation of these words as participles is at least phonologically and morphologically possible. The following words are examples for which no related verb root has been found.

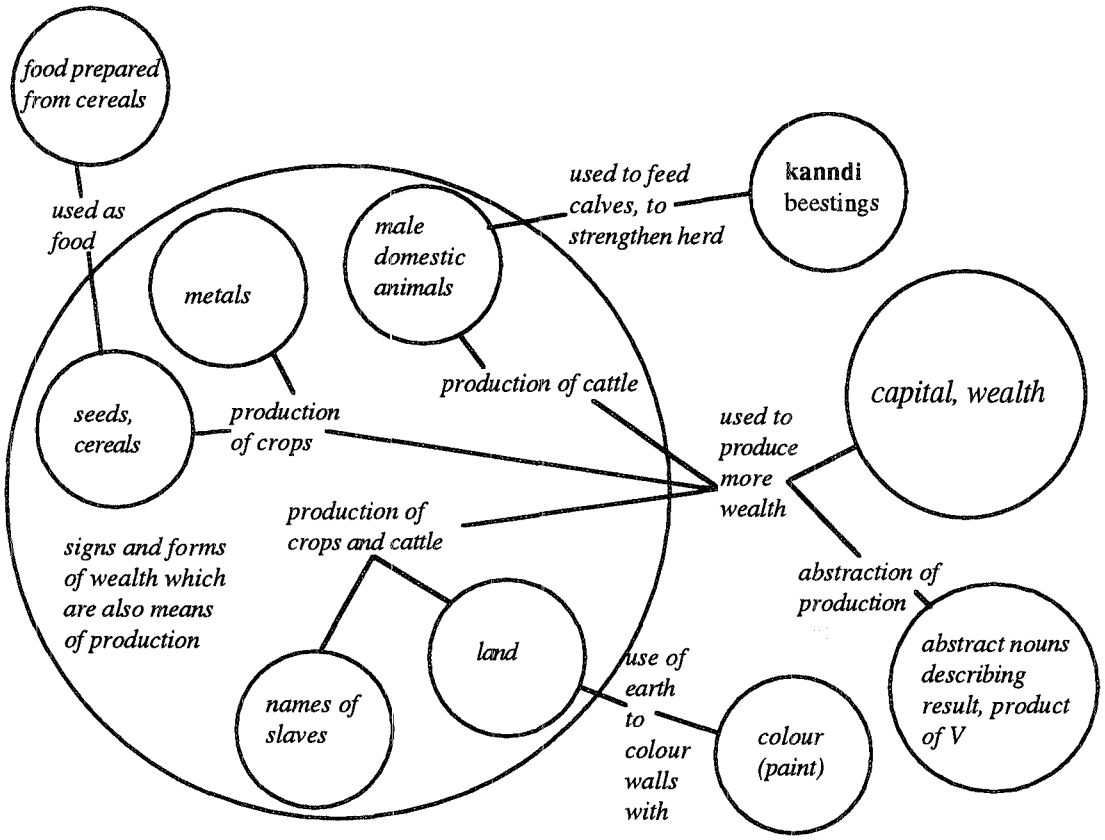
wijan-^{n}du	'braids of Fulbe men'
kurfen-^{n}du / kurfen^{n}duuji	'fan'
ʔen-^{n}du / ʔenɗi	'breast'
wee^{n}du / beeli	'pond'
foo^{n}du / pooli	'bird'
holɓu^{n}du / kolɓuli	'ankle'
soɓɓu^{n}du / coɓɓuli	'corner; elbow'
suku^{n}du / cukuli	'hair of head'
suu^{n}du / cuuli	'jackal'

These words show every phonological and morphological characteristic of a verbal participle, although the related verb is not (yet) known. The claim is that their etymology should be explained as having a verbal source.

7.2.3 THE NDI CLASS

The members of the NDI class belong to the following semantic categories: domestic male animals, seeds and cereals, metals like iron and steel (**ɓaleeri** 'very hard and strong kind of iron'), land, the word for maid, and some abstract nouns. A possible radial structure around the idea of "capital" could link the different semantic groups in the NDI class. Capital is defined here as "wealth or property that may be used to produce more wealth". The word **jawdi** is a polysemous word meaning 'wealth' and 'cattle', i.e. all the cattle owned by one owner (either a person, a family or a lineage). The domestic male animals are used to breed, to produce more cattle. Seeds can be sown to produce more grain (cereals). Land is a necessary asset for the production of cattle and cereals. Iron may be used to improve the production of cereals. The metals which are not used for agricultural tools like gold and copper are not in the NDI class in the Fulfulde of Maasina. Names of slaves like **pulloori** are also found in the NDI class. This is because slaves are associated with wealth. This association is also described by Riesman (1992:60) who states that slaves (**maccuɓɛ**) were classed as a form of wealth (**jawdi**). Several associations could explain the presence of the word **ᵐboomri** 'maid, (strong) nubile girl' in the NDI class. Possibly, the word **ᵐboomri** is grouped in this class via the concept of "sign of wealth". It can also be associated with slave names, since the word evokes ideas of a strong, rough and somewhat masculine girl, strength and roughness being associated with the social class of (ex-)slaves. The meaning "product, result of" can be attributed to the abstract nouns in the NDI class. This formation of a deverbal noun expressing the result of the verb explains the membership of words like **leydi** 'land' and **ᵐboddi** 'snake' in the NDI class. The etymology of the word **leydi** 'land, earth' is a deverbal noun paraphrased as the "product of clearing the bush". The taboo word **ᵐboddi** 'snake' is in de NDI class because of its etymology as a "product, result of taboo". The word **ᵐboddi** 'snake' is derived from the verb **woɗudɛ** 'to ban, to put a taboo on something'. Thus the following network of semantic associations is proposed for the semantic grouping of nouns in the NDI class.

capital, wealth		*domestic male animals*		*seeds*		*signs of wealth*	
jawdi	cattle, wealth	**ⁿgaari**	bull	**ɲiiri**	cereals	**ᵐboomri**	maid
ɓɛydaari	increase	**ⁿjawdiri**	ram	**gawri**	millet	**kanⁿdi**	beestings
		korboori	stud	**ʔaawdi**	seed	**ⁿjuumri**	honey
product, result		**ⁿdamⁿdi**	he-goat	**bamᵐbaari**	maize		
ⁿjob-di	wages					*metal*	
puuddi	henna	*slave names*		*land*		**ⁿjamⁿdi**	iron
ᵐbuuddi	swelling	**pulloori**		**leydi**	land, country	**cardi**	silver
needi	education	**ɓɛydaari**		**ⁿjaareeⁿdi**	sand	**ɓaleeri**	steel
ʔiwdi	off-spring						
ᵐboddi	snake						



Semantic associations in the Fulfulde language are to a large extent culturally defined. Independent evidence from the study of the culture of the Fulbe (for which the study of the language of the Fulbe is a great tool) is necessary for their verification. This study restricts itself to the description of different semantic groupings of nouns within one class and it provides only provisional proposals for the reasons of the semantic grouping of meanings in a Fulfulde noun class.

That these semantic associations are subject to constant reanalysis is demonstrated by semantically motivated shifts of class membership. For example, the word **kaŋŋe** 'gold' is in the 'O class in Maasina because it is a loan-word. The word **kaŋŋeeri** 'gold' is put in the NDI class in Ringimaaji because it is thought of as a metal and other metals belong to NDI class. Likewise, **maarɔ** 'rice' is in the NGO class in Maasina possibly based on the perception that it is associated with the river. The word **maaroori** 'rice' is put in the NDI class in the Fulfulde of 'Yola (Nigeria) because it is classified with other cereals. These differences show that different dialect groups classify the same entities differently according to the way they use, experience or interact with these entities.

The words in the NDI class are found with five different surface forms of the class suffix, i.e. **-iri**, **-ri**, **-di**, **-ⁿdi**, and **-ⁿji**.

suffix forms of NDI class

grade A	***-ri**	objective word derivation; allomorphs **-iri**, **-ri**, **-di**, **-ⁿdi**
grade B	***-ɥ-ri**	associative word derivation; surface form **-ri** preceded by vowel length
grade C	***-r-di**	circumstantial word derivation; "process and result, product of"; surface form **-di**
grade D	***-n-di**	subjective word derivation; allomorphs **-ⁿdi** and **-ⁿji**

The following table shows the general pattern of suffix forms allocated to the different grades in the NDI class.

	A	B	C	D
-iri	**ᵐbadd-iri** **badd-i** 'young bull'			
-ri	**ᵐboom-ri** **boom-i** 'maid'	**layyaa-ri** **layyaaji** 'Tabaski ram'		
-di	**ᵐbuul-di** **buul-i** 'white faced bull'		**nee-di** 'education'	
-ⁿdi	**con-ⁿdi** 'flour' **cɔn-al** 'bit of flour'			**ɗaa-ⁿdi** **ɗaal-li** 'pack-ox'

The gaps in the table represent the absence of nouns with these phonologically predictable suffix forms in the grade B, C, and D. The following sections discuss their distribution over the different grades, and thus the different meanings which they contribute to word derivations.

7.2.3.1 THE GRADE A SUFFIX FORMS **-iri -ri -di -ⁿdi**

The suffix forms of the objective word derivation differ according to the phonological context in which they occur. In the majority of words these forms are predictable. The suffixes of the objective word derivation occur on plain noun stems. In combination with verb stems, they denote the unmarked object of that verb.

The vowel initial allomorph **-iri** is found following stems ending in a consonant or a consonant sequence that cannot precede the initial consonant [**r**] of the underlying suffix form of grade A: ***ri**. The allomorph **-ri** occurs after stems ending in a segment which is at least as sonorant as [**r**], i.e. a vowel, a glide or the bilabial nasal [**m**]. The allomorph **-di** occurs following stems ending in an alveolar continuant [**l**] or [**r**]: this is to restore the correct order of sonority in the consonant sequence. The allomorph **-ⁿdi** occurs after stems ending in a nasal other than [**m**]. The following words contain a nominal stem.

Nominal stems with objective word derivation:

lacc-iri	'couscous of millet'
ⁿgaa-ri / gay, gɛy	'bull; male calf'
ⁿgaw-ri / gafɛɛlɛ	'millet / sorts of millet'
col-di / coli	'bull with small dark spot'
car-di	'silver'
kan-ⁿdi	'beestings'
con-ⁿdi	'flour, powder'

The following examples show the objective word formation of deverbal nouns in grade A.

Verbal stems with objective word derivation:

unmarked object of verb		verb	
ʔuj-iri / ʔuji	'castrated bull, bullock, ox'	**ʔuj-u-dɛ**	'to castrate'
lett-iri / letti	'bull with one vertical and one horizontal horn'	**lett-u-dɛ**	'to squint'
ɓeem-ri	'yearly falling of water level'	**ɓeeɓ-u-dɛ**	'to dry (up)'
ⁿjaay-ri	'plain' (width)	**yaaj-u-dɛ**	'to be broad, wide'
ɲaam-ri	'cereals'	**ɲaam-u-dɛ**	'to eat'
ⁿjiiɓ-iri	'dough, paste'	**jiiɓ-u-dɛ**	'to mix'
diiɓ-iri	'dough, paste' [Duwansa]		
ⁿdem-ri	'rice'	**rem-u-dɛ**	'to cultivate'
ᵐbinⁿd-iri	'writing'	**winⁿd-u-dɛ**	'to write'
ⁿjuum-ri	'honey'	**yuum-u-dɛ**	'to collect honey'
ɓuum-ri	'cold' as euphemism for 'venereal disease'	**ɓuuɓ-u-dɛ**	'to be cold'

7.2.3.2 THE GRADE B SUFFIX FORM **-ri**

The suffix form **-ri** marks the associative word derivation. It is added to full words. The last vowel of the stem is mostly lengthened. The associative word formation indicates that the object denoted by the class marker (here bulls or rams) have a semantic association with the word that serves as its stem.

Associative word derivation:

nayiiri / nayiiji	'four year old bull'	**nayi**	'four'
tatiiiri / tatiiji	'three year old bull'	**tati**	'three'
sappoori	'mature bull, ten years old'	**sappɔ**	'ten'
layyaari	'ram bought for Tabaski'	**layya**	'Tabaski'
tɛrkaari	'bull with more colours'	***tɛrka**	

The word **korboori/korbooji** 'breeding bull, stud bull or breeding he-goat' is derived form the verb **hɔrbaadɛ** 'to be powerful' with the agentive word formation which is formed with the marker of the 'O class. The presence of the suffix of the KA class in the stem of **tɛrkaari** 'bull with more colours' could indicate that the stem represents a type of blanket since only blankets are found with the suffix form **-ka**. The long vowel [**aa**] in the following words

could be a class marker **-a** (also of the KA class) or the final vowel [**a**] of a loan-word which is lengthened by the associative word derivation. The exact etymology of the following three words is not clear.

bɔttaari / bɔttaaji	'lunch'	**wɔtt-aa-dɛ**	'to lunch'
kaccitaari	'lunch'	**kaccit-aa-dɛ**	'to lunch'
ɓɛydaari	'increase'	**ɓeyd-u-dɛ**	'to increase, to augment'

Possibly the vowel [**a**] is a marker of the KA class preceding the suffix **-ri** of the NDI class. This would mean that the names for the meals have shifted from the KA class in which human artefacts are grouped to the NDI class in which cereals are grouped. Since these meals are both prepared by humans and made from cereals, both perspectives are possible. An increase (in wealth) is produced by people and it is also a form of wealth.

7.2.3.3 THE GRADE C SUFFIX FORM **-di**

The verbal stems combining with the suffix form **-di** of the circumstantial word derivation denote concepts that describe both the process and the result of the verb from which they are derived. The meaning "product, result" is associated with the marker **-di** of the NDI class. The meaning "process of" is contributed by the circumstantial grade marker indicating the "mode" in which the verb is performed.

Circumstantial word derivation: process and result:

kaad-di	'ending'	**haaɗ-u-dɛ**	'to stop, not go further'
nee-di	'education'	**neh-udɛ**	'to educate'
maa-di / maadiiji	'building'	**mah-u-dɛ**	'to form, to build'
ᵐball-u-di	'help'	**wall-u-dɛ**	'to help'
ⁿjob-di	'negotiated wages'	**yoɓ-u-dɛ**	'to pay' (negotiate pay)
kaart-u-di	'saliva, spitting'	**haart-aa-dɛ**	'to clear throat, to spit'

The assimilation of the stem final consonant with the suffix initial consonant results in an alveolar [**d**] in the following two words which also describe the result and process of the related verb stem.

***ɓuut+di > ɓuuddi > ɓuudi**		***sɔk+di > *cokdi > coddi**	
ɓuudi, ɓuuddi	'swelling'	**coddi**	'blackened lips and gums'
ɓuut-u-dɛ	'to swell'	**sok-u-dɛ**	'to blacken by piercing'

Not all the words are straight forward examples of derivations of a verb showing the clear meaning of the nominalization "process and product, result" of the action expressed by the verb. More detailed semantic descriptions of the following words are needed to describe the "mode, purpose or intention" that occurs in these words.

		process and result of	
ʔiw-di	'descent, off-spring'	**ʔiw-dɛ**	'to come from, originate'
ʔaaw-di / ʔaawdiiji	'seed'	**ʔaaw-dɛ**	'to sow'
puud-di, puudi	'henna'	**fuuɗ-aadɛ**	'to apply henna'
ᵐbod-di / bɔllɛ	'snake'	**woɗ-udɛ**	'to ban, to make taboo'

The outcome of **ʔiw-dɛ** 'to originate from somewhere' is that one belongs to a line of descent (**ʔiwdi**). The word **ʔiwdi** is found translated as 'origin' in other dialects (Zoubko 1980:46). The meaning of the word **ʔiwdi** has something to do with origin (where one comes from) and with offspring (what comes from the same place of origin). Seed can be thought of as that which you sow, that which makes sowing possible. The instrumental meaning of the circumstantial derivation expresses the idea that seed is used for sowing. The meaning "product, result" comes from the fact that more seed can be obtained from sowing seed, so seed is also the product, the result of sowing. In a similar way, henna is the product with which you make decorations on the body and the resulting decorations. There is insufficient evidence to support the fact that the Fulbe believe that the uttering of the taboo word **ᵐboddi** 'snake' results in the appearance of a snake. However, the actual word is taboo and instead of it the euphemistic expression **ɓoggol leydi** 'rope of the earth' is used in Maasina. The idea that the breaking of the taboo results in the appearance of a snake is present with speakers of the closely related Wolof language. This makes the etymology of **ᵐboddi** 'snake' as "result of taboo" plausible.

The following words have stems that are of the same form as certain verb stems. It is not obvious that these nominal and verb stems are related. The suffix combining with these stems is **-di**. The meaning attached to the suffix **-di** 'result of, product of' is also not always obvious. But no other explanation for the occurrence of the suffix **-di** is available. So far these hypotheses are the only explanations available.

process and result of underestimating:			
jaw-di / jawlɛ, jawdiiji	'wealth, fortune'	**yaw-dɛ**	'underestimate'
ⁿjaw-di	'big ram'		
ⁿjaw-di-ri / jaw-ɗi	'ram'		

It is possible that the name for 'ram' and 'wealth' are related to the verb 'to underestimate'. This name may have had pejorative connotations, i.e. a depreciation of its value. This is often the case with names for children. Pejorative names like **waɲaaⁿdu** 'that is hated' are given to protect them. The derogatory name is expected to deceive the evil spirits and prevent them from taking away the children or the ram or the wealth. Is **jawdi** 'wealth' perhaps the result of the underestimation? And is **ⁿjawdiri** then based on the word for wealth because rams would be considered part of wealth?

process and result of leading so. or sth.:			
ɗow-di	'shadow'	**ɗɔw-dɛ**	'to lead' (horse, blind person)

Possibly, the 'shadow' is named after its nature of accompanying one all the time, like one that is leading a horse or a blind person. Another possible explanation is that leading

someone results in the creation of a shadow for that person. The shadow is the result of leading someone.

Perhaps more imagination is needed to explain the meaning of the suffix **-di** as 'product and result of' in the word **leydi** 'land', although it does not seem to be impossible. The verb **les-a** is not attested in Maasina. Its meaning is taken from Zoubko (1980:325) who indicates that it occurs in Fuuta Jallon.

process and result of clearing the bush > bare earth:

ley-di	'earth'	**les-a**	'to clean (remove what shouldn't be there), clear, slash, trim, prune, work (wood), tool (stone)'
ley-di / lɛyɗɛ	'land'		

The basic meaning of the word **leydi** is proposed as 'bare earth, fallow, bare land ready to be cultivated'. In this way the word **leydi** can be seen as the result of "clearing" part of the bush, in the sense that one removes what shouldn't be there by slashing away shrubs, by trimming trees, by moving stones to lay open the bare earth. The semantic broadening of the term from bare earth to earth to land to country is then a plausible path of semantic expansion.

A tendency for the type of derivation where the suffix **-di** has the meaning "process and result, product of" can be established despite some examples that are difficult to explain. This morpheme originates from a combination of the circumstantial grade marker ***r** and the class marker ***ri** of the NDI class.

7.2.3.4 THE GRADE D SUFFIX FORMS -^{n}**di** AND -^{n}**ji**

The subjective word derivation in the NDI class is marked by the suffix form -^{n}**di**. The subjective word derivation is used for the formation of deverbal nouns. The grade D grade marker indicates that the noun has the semantic role of the subject of its verb stem. The prenasalized initial suffix is identical in form to the subject concord. The grade D suffix is the form of the class suffix in participles. The following words can be explained by their derivation from participles (historically).

that which colours yellow:	
ʔoolɗin-^{n}di 'yellow dye'	**ʔoolɗ-iddɛ** 'to colour yellow'
that which (walks as if it) is hindered:	
pallaa^{n}di / pallaaɗɛ 'lizard'	**fall-aadɛ** 'to be hindered by an obstacle'
that which is being cultivated:	
dɛmaa^{n}di 'rice'	**rɛm-ɛɛdɛ** 'to be cultivated'
(bull) which is docile:	
[*ɗaat-^{n}di > *ɗaan-^{n}di > ɗaa-^{n}di]	
ɗaa^{n}di / ɗaalli 'pack-ox, docile bull'	**ɗaat-udɛ** 'to be docile, gentle'
(bull) which has erected (its horns):	
carŋinii^{n}di / carŋiniiɗi 'bull with horns pointing forwards'	**sarŋin-aadɛ** 'to erect, put upright' (Zoubko 1980:428)

A number of nouns referring to qualities are derived from verb stems with the grade D suffix -^{n}**di**. The abstract nouns given below are identical to the adjectival forms of these words for

the NDI class. Note that the meaning of the adjective is transparent, it is identical to the paraphrase given for the derivation of the participle. The input to the nominalization of the participle is a relative clause. This relative clause can in some instances describe the abstract noun derived from verbs which express a state. In a similar way the relative clause of stative verbs can be interpreted as adjectives. This explains why sometimes the abstract noun and the adjective of stative verbs fall together.

verb		noun	
faaɗ-udɛ	'to be narrow'	**paa^{n}di**	'narrowness'
haaɗ-udɛ	'to be bitter'	**kaa^{n}di**	'bitterness'
juut-udɛ	'to be long'	**^{n}juu^{n}di, ^{n}juun^{n}di**	'length'
yaaj-udɛ	'to be wide'	**^{n}jaay^{n}di, ^{n}jaa^{n}ji**	'width'
adjective (NDI)			
paa^{n}di	'narrow'	**leydi paa^{n}di**	'a narrow land'
kaa^{n}di	'bitter'	**gawri kaa^{n}di**	'bitter millet'
^{n}juu^{n}di	'tall'	**^{m}boomri ^{n}juu^{n}di**	'a tall maid'
^{n}jaay^{n}di	'wide'	**^{n}jayri ^{n}jaay^{n}di**	'a wide plain'

Palatalization of the initial consonant of the suffix occurs in the word **^{n}jaay^{n}di, ^{n}jaa^{n}ji** 'width' under the influence of the final palatal consonant of the stem and the high vowel [**i**] in the suffix. This results in the only noun in the NDI class that has an allomorph -**^{n}ji**.

What the related verb is in a number of words that are formed using the subjective word derivation is not known or uncertain.

^{n}dam-^{n}di, ^{n}dan-^{n}di / damɗi	'he-goat'	**raɓɓ-udɛ**	'to be short'
^{n}jam-^{n}di, ^{n}jan-^{n}di / jamɗɛ	'iron'	**yam-udɛ**	'to be healthy'
^{n}geen^{n}di, ^{n}gee^{n}di / gɛllɛ	'village'	**yeet-udɛ**	'to live'
^{n}jaaree^{n}di	'sand'	**yaar-udɛ**	'to go with'

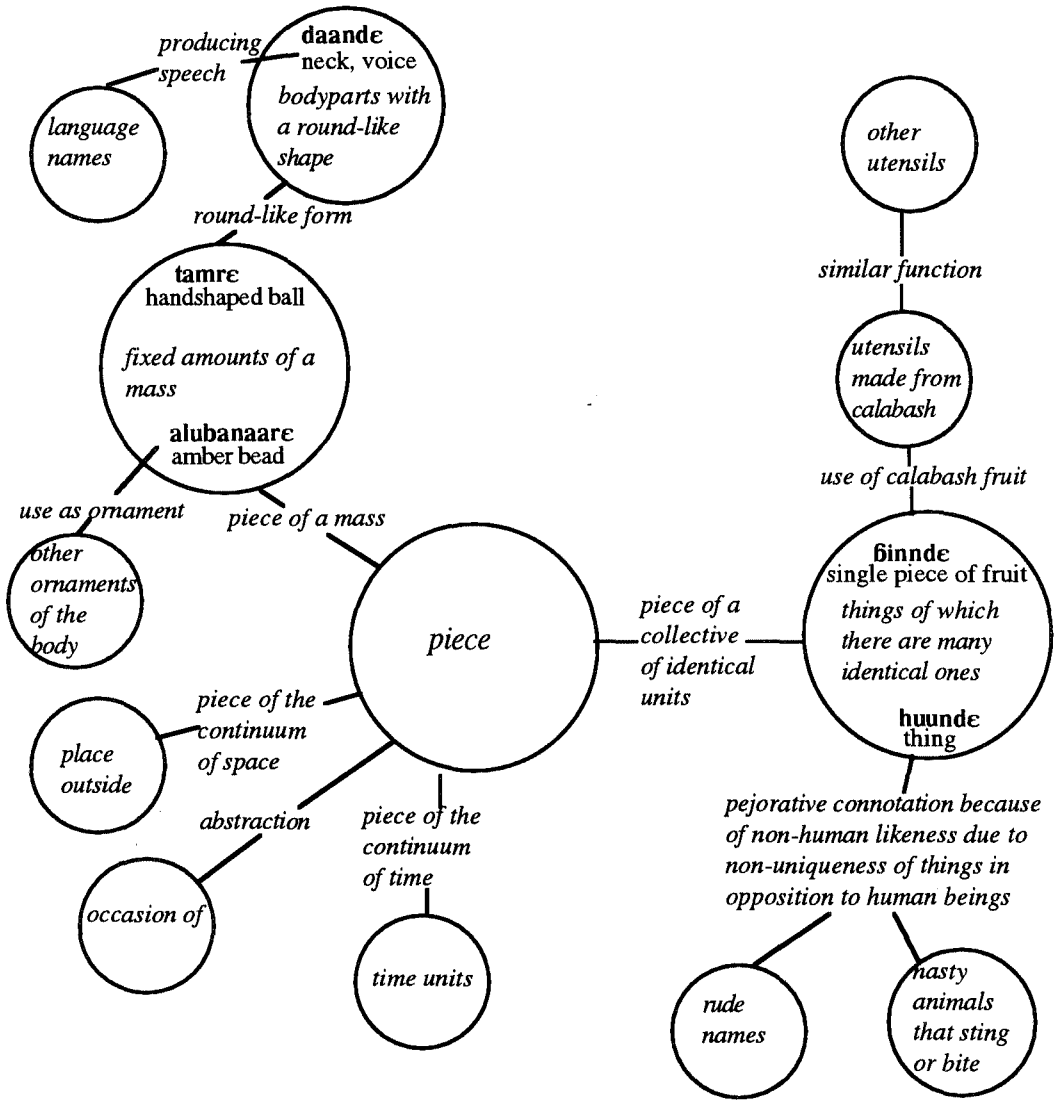
The hypothesis is that the relation between the derived words and the verb from which they have been derived has become opaque, either through loss of the verbs or through semantic shift.

7.2.4 THE NDE CLASS

The NDE class groups a large number of nouns. Arnott (1970a:75) states that the NDE class contains nouns covering a wide range of meanings including places and times, globular and annular objects. The central meaning denoted by the class marker seems to be "a piece of". Different sets group "pieces of a larger mass", "pieces that are singled out from a collection of identical units", and "pieces of a continuum of time or space". Other semantic sets of words like utensils, ornaments or language names are linked to the NDE class by an association with a particular member of the NDE class.

The pejorative names in the NDE class are different from the pejorative names in the NDU class. The pejorative names in the NDU class are meant to protect the named person from bad spirits, whereas the pejorative names in the NDE class are insults like **nɛɗɗ-ɛrɛ** 'rough

person' (with the same stem as **nɛɗɗ-ɔ** 'person'). The addition of the inanimate "thing-like" meaning associated with the NDE class gives the word the meaning of "inhuman person". The following network of semantic associations are proposed for the semantic grouping of words in the NDE class.



fixed amount of a mass		*piece from a collection*		*units of time*	
haayre	stone	**ɲiire**	tooth	**ɲanⁿdɛ**	day
tɔɓɓɛre	drop of rain	**hɔɔdɛre**	star	**yɔntɛre**	week
ɟulɓɛre	piece of charcoal	**hɔlsɛre**	hoof	**hitaaⁿdɛ**	year
disaare	piece of cloth	**hinɛre**	nostril	**dabbuⁿdɛ**	cold season
ruulde	cloud	**limre**	number	**ɟaawⁿdɛ**	harvest season
saabunⁿdɛ	piece of soap	**yitɛre**	eye		
tamre	hand formed ball	**rɔtɛre**	bum	*units of space outside*	
tayre	part	**leɛmre**	(one) hair	**laamɔrdɛ**	capital
ʔalubanaare	piece of amber, bead	**huuⁿdɛ**	thing	**jɔnⁿdɛ**	position
		ɓinⁿdɛ	fruit	**ladde**	bush
		miisiide	mosque	**dɛɛⁿdɛ**	quarter

ornamental pieces		*piece of fruit*		*pejorative rude names*	
seedere	cowry	**maŋⁿgɔrɔɔre**	one mango	**nedɗere**	rude person
hɔɔtɔnⁿde	earring	**bananaare**	one banana	**ʔinnaare**	namesake of mother
sanaare	nose ring	**gɔrɔɔre**	one kolanut		
sarde	ring	**tumᵐbude**	calabash	*nasty small animals (sting or bite)*	
handformed round-like shape				**yaare**	scorpion
ɓɔɔdere	ball	*utensils made from calabash*		**fiŋaare**	captain fish
hɔɔre	head	**hɔrde**	ladle	**wɔjere**	hare
ɓɔccɔɔⁿde	egg	**lawlɔrde**	milking bowl		
				language names	
round-like form		*utensils*		**fulfulde**	
sarde	ring	**haasaade**	file	**maasinaŋkɔɔre**	
daaⁿde	neck, voice	**lɔɔⁿde**	water pot		

The nouns in the NDE class are characterized by a suffix of this class. The following table shows the underlying forms of the different suffix forms and their allomorphs.

grade A:	***-re**	objective word derivation; allomorphs **-ere**, **-re**, **-de**, **-ⁿde**
grade B:	***-ɥ-re**	associative word derivation; surface form **-re** preceded by vowel length
grade C:	***-r-re**	circumstantial word derivation; surface form **-de** intention: infinitives; purpose: utensils
grade D:	***-n-re**	subject word derivation; allomorphs **-ⁿde**, **-ⁿje**

It is possible to recognize a pattern among these suffix forms which is also described for the suffix forms of the NDU and NDI class. The classification of these suffix forms over the different grades by Arnott is determined by the behaviour of the stem in combination with other class suffixes. The table below gives the regular distribution of suffix forms which is identical to the distribution of the suffixes in the NDU and NDI class.

	grade A	grade B	grade C	grade D
-ere	**licc-ere**			
	licc-e			
	'rag'			
-re	**new-re**	**sagii-re**		
	new-e	**cagii-je**		
	'hand palm'	'basket'		
-de	**sar-de**		**laamɔr-de**	
	car-e		**laamɔr-ɗe**	
	'ring'		'capital'	
-ⁿde	**hɔɔtɔn-ⁿde**			**ʔin-ⁿde**
	kɔɔtɔn-e			**ʔin-ɗe**
	'earring'			'name'

7.2.4.1 THE GRADE A SUFFIX FORMS -ɛrɛ -rɛ -dɛ -ⁿdɛ

All the four allomorphs that occur in grade A are conditioned phonologically. The vowel initial allomorph **-ɛrɛ** occurs following a stem that ends in a segment which cannot precede the consonant [**r**]. This suffix initial consonant cannot be preceded by more than one consonant, it cannot be preceded by a consonant that is less sonorant. The continuant initial allomorph **-rɛ** follows stems ending in a segment that is more sonorant than [**r**]. The plosive initial allomorph **-dɛ** follows a stem ending in an alveolar continuant [**l**] or [**r**]. The prenasalized initial allomorph **-ⁿdɛ** follows a stem ending in an alveolar nasal. The suffix forms of grade A are used in the "objective" word derivation. Words derived with these suffixes simply denote objects when the stem is nominal.

Nominal stems in objective word derivation:

hin-ɛrɛ / kinɛ	'nose'
hɔɔd-ɛrɛ / kɔɔdɛ	'star'
fɛll-ɛrɛ / pɛllɛ	'blaze, small spot on the forehead'
nɛw-rɛ / nɛwɛ	'palm of the hand'
hɔɔ-rɛ / kɔhɛ	'head'
sar-dɛ / carɛ	'ring'
hɔr-dɛ / kɔrɛ	'small calabash'
gan-ⁿdɛ	'chest, rib cage of a living animal'
saabun-ⁿdɛ / caabunɛ	'soap'
hɔɔtɔn-ⁿdɛ / kɔɔtɔnɛ	'earring'
haatan-ⁿdɛ / kaatanɛ	'cooking stone/fireplace'

Nouns in the NDE class which are derived from verbs with the objective derivation denote the unmarked object of that verb or the unmarked state expressed by that verb.

Deverbal objective word derivation of action or process verbs: cognate object:

mɔɔtt-ɛrɛ	'gathering'	**moottudɛ**	'to gather'
yɛdd-ɛrɛ	'objection'	**yeddudɛ**	'to contradict'
murt-ɛrɛ	'uprising, revolt'	**murtudɛ**	'to revolt'
lim-rɛ / limɛ	'number'	**limudɛ**	'to count'
fim-rɛ / piɓɛ	'knot, wedding'	**fiɓudɛ**	'to tie'
naar-rɛ	'entering of the water'	**naatudɛ**	'to enter'
tay-rɛ / tajɛ	'part'	**tajudɛ**	'to cut'
tam-rɛ / tamɛ	'hand formed ball'	**tamudɛ**	'to hold in the hand and make a ball'

Inchoative verbs: cognate state:

hɛyɗ-ɛrɛ	'hunger'	**heyɗudɛ**	'to be(come) hungry'
natt-ɛrɛ	'laziness'	**nattudɛ**	'to be(come) lazy'
tamp-ɛrɛ	'tiredness'	**tampudɛ**	'to be(come) tired'
dɛjj-ɛrɛ	'silence'	**dejjudɛ**	'to be(come) silent'
fuuy-rɛ	'laziness'	**fuuydɛ**	'to be(come) lazy'
jɔy-rɛ	'wittiness'	**jojudɛ**	'to be(come) clever, witty'
bɔn-ⁿdɛ / bɔnɛ	'evil, bad luck'	**bonudɛ**	'to be(come) bad'

A gathering is the cognate or unmarked object of the verb to gather. A number is the unmarked object of counting. A knot is the unmarked object of tying. Hunger is the unmarked state described by the verb to be hungry. Tiredness is the unmarked state of being tired. The only form that uniquely marks the objective word derivation is the suffix form **-ɛrɛ**. Possibly, this form has replaced the suffix form **-ⁿdɛ** which is expected after stems ending in an alveolar nasal in a word like **hinɛrɛ** 'nose'.

7.2.4.2 THE GRADE B SUFFIX FORM **-rɛ**

The suffix form in grade B nouns is formed underlyingly from the associative grade marker ***ɥ** and the class marker ***rɛ**. The trace which the grade marker leaves is the lengthening of the last vowel of the stem. This suffix is added to stems that are full nouns which are either loan-words or Fulfulde stems combined with a class marker, or even inflected verb forms.

		loan-words
fotii-rɛ / potiijɛ	'saucepan'	Fr. **pot**
ŋooɲiirɛ / ŋooɲi	'fried dough-balls'	Bmb. **ŋomi**
bananaarɛ / bananaajɛ	'[one] banana'	Fr. **banana**
		indigenous Fulfulde words
ⁿgaykaarɛ / ⁿgaykaajɛ	'hole'	**ⁿgay-ka** 'hole'
waaldɛɛrɛ / waaldɛɛjɛ	'age mate'	**waaldɛ** 'age group'
maasinaŋkɔɔrɛ	'Maasina dialect'	**maasinaŋk-ɛ / -ɔɔɓɛ** 'person from Maasina'

The meaning of the class marker denotes the same thing as the stem when the stem is a loan-word. The class marker in **bananaarɛ** denotes "a piece of fruit", this word formation associates it with the generic fruit name 'banana'. Likewise the class suffix in **ŋooɲiirɛ** denotes a "ball formed piece". The word formation associates that meaning with the Bambara name for "a fried dough-ball". Sometimes the association between grade B words and the full words found in the stem is partial. An age mate is "one single piece (person) associated with an age group". The language of Maasina is "the language associated with people of Maasina".

There are a number of grade B words whose stems do not seem to function as independent words in Maasina.

haddamaa-rɛ / kaddamaajɛ	'wrapper'	**haddudɛ**	'to wrap'
fɔdɔɔ-rɛ / pɔdɔɔjɛ	'promise'	**fodudɛ**	'to promise'
salaa-rɛ / salaaji	'refusal'	**salaadɛ**	'to refuse'
hɔɔlaa-rɛ	'confidence'	**hɔɔlaadɛ**	'to trust'
taɲaa-rɛ	'ugliness'	**taɲaadɛ**	'to be ugly'
dejjinaarɛ	'taciturnity'	**dejjinaaadɛ**	'to keep quiet'

The word **fɔdɔɔrɛ** could be formed using the agentive derivation "that which promises" (see section 8.1.4). The word **haddamaarɛ** could be based on the conjugated verb form **haddaama** 'has been wrapped, worn around the waist'. The derivational history of the

remaining three words is not clear. The long vowel [**aa**] could be the trace of a class marker of the KA class.

7.2.4.3 THE GRADE C SUFFIX FORMS -dɛ AND -ⁿjɛ

The combination of the circumstantial marker ***r** with the class marker of the NDE class results in the suffix form **-dɛ**. Nouns that are formed with this **-dɛ** suffix denote things which are semantically linked to the NDE class and are characterized by their purpose or intention. It seems useful to make two groups of nouns that are formed with the circumstantial word derivation in the NDE class.

Two related categories in grade C of NDE class:
1. places and instruments paraphrased by their use (purpose)
2. verbal nouns forming the infinitive: indicating intention

Places and instruments

Most nouns which take the allomorph **-dɛ** of grade C as suffix of the NDE class are stems which often combine with the circumstantial extensions **-ir-** or **-r-**. The nouns resulting from stems with the circumstantial extension are names of locations and instruments (see also Mohamadou 1985:284-289). In Maasina the following names of locations or places and instruments or articles of use are found. The extension **-ir-** is used when the noun is derived from an active verb. The extension combines with the middle voice marker ***ɔ** when the noun stem is derived from a middle voice verb. The stems in the following words are built on existing verb stems, except the word **luumɔrdɛ** 'commercial quarter' which is related to the noun **luum-ɔ ⁿgɔ** 'the market'.

instruments, CL: "calabash, stone, piece", CIRC grade marker: "purpose; used for"

ʔomᵐbirdɛ / ʔomᵐbirɗɛ	'lid, cover'	**ʔomᵐbudɛ**	'to cover'
ɓilirdɛ	'hook, string'	**ɓildɛ**	'to hang'
feccirdɛ	'object for dividing'	**feccudɛ**	'to divide'
laamnirdɛ, laanirdɛ	'soap'	**laaɓudɛ**	'to clean'
dasirdɛ / dasirɗɛ	'dragstone on loom'	**dasudɛ**	'to drag'
jaaɲɔrdɛ / jaaɲɔrɗɛ	'collecting milk bowl'	**jaajaadɛ**	'to gather home'
lawlɔrdɛ / lawlɔrɗɛ	'bowl for milk'	**lawlaadɛ**	'to collect milk'
jɔkkɔrdɛ / jɔkkɔllɛ, jɔkkɔɔlɛ	'joint'	**jokkudɛ**	'to follow, to join'
ɓursirdɛ / ɓursirɗɛ	'stone for removing seeds from cotton'		
jigirdɛ / jigirɗɛ	'wood to roll leather'		

locations, CL: entity is a "spatial unit", CIRC grade marker: "purpose; used for"

fijirdɛ / pijirɗɛ	'playground'	**fijudɛ**	'to play'
jippɔrdɛ / jippɔrɗɛ	'place of descent, station'	**jippaadɛ**	'to descend'
laamɔrdɛ / laamɔrɗɛ	'headquarters, capital'	**laamaadɛ**	'to govern'
lɔɔtɔrdɛ / lɔɔtɔrɗɛ	'bathing place'	**lɔɔtaadɛ**	'to wash o.s.'
juulirdɛ / juulirɗɛ	'place for praying'	**juuldɛ**	'to pray'
luumɔrdɛ / luumɔrɗɛ	'commercial quarter'	**luumɔ**	'market'
taarɔrdɛ	'bathing place'		

The places and instruments are paraphrased as "what the place or thing linked to the NDE class is used for". The meaning of the circumstantial extension in these nouns can be summarized as "used for". It indicates the purpose of the place or instrument. There are a number of nouns that show a suffix with the form **-dɛ** with the same meaning that can not be explained phonologically. Their stems do not end in a final [**r**] of the circumstantial extension. However, the words that have this unpredictable **-dɛ** suffix all denote articles of use. The hypothesis is that the phonologically predictable allomorph **-dɛ** occurring frequently after stems of nouns with the extension **-ɔr-** and **-ir-** with the meaning "used for" developed into a morpheme denoting articles of use. The circumstantial grade marker is postulated in the underlying structure of the suffix form **-dɛ** in grade C. Many of these words are built on existing verb stems and show the same semantic relation between the object and the related verb stem. They express the purpose of the object, also when the circumstantial extension is not present in the verb stem.

tum^{m}bu-dɛ / tum^{m}buɗɛ	'calabash recipient'	**tum^{m}budɛ**	'to put in'
fɛɗɔɔ-dɛ / pɛɗɔɔɗɛ	'button'	**feɗudɛ**	'to button'
haasaa-dɛ / kaasaaɗɛ	'file'	**haasaadɛ**	'to file'
ɲeɗu-dɛ / ɲeɗuɗɛ	'calabash ladle'	**ɲeɗudɛ**	'to scoop'
taasan-^{n}dɛ / taasanɗɛ	'iron to make fire with kapok and flint'		
ɓɔrɲaa-dɛ / ɓɔrɲaadɛɛjɛ	'leather for attaching stirrup'		
naakaa-dɛ / naakaaɗɛ	'wood for printing patterns on leather'		
lad-dɛ / laddeeji	'bush'		
fɛd-dɛ / pɛllɛ	'age group; organization'		

The last word must be related to the verb stem **fed-a** 'put different things, persons together' (Zoubko 1980:166). The verbs related to the last five examples are not attested in Maasina, but similar derivations must have caused their combination with the suffix form **-dɛ**.

Mohamadou (1985:288) suggests that assimilation has taken place in a number of nouns denoting instruments with a phonologically unpredictable suffix **-dɛ**. The stem final consonant [**r**] of the circumstantial extension would have assimilated to the initial consonant of the suffix **-dɛ**. The problem with such an analysis is that the sequence [**rd**] would not lead to an ill-formed structure (in either Maasina or Aadamaawa). Therefore, there is no need for the application of a repair strategy such as assimilation.

The following cognate forms used by speakers in Mopti and Toggere Kumba suggest that the word derivation of a particular concept can be subject to reanalysis.

infinitive (grade C):	**ɓood-udɛ**	'to be compact'
grade A:	**ɓɔɔd-ɛrɛ / ɓɔɔd-ɛ**	'ball' [Toggere Kumba]
grade C:	**ɓɔɔd-dɛ, ɓɔɔdɛ / ɓɔɔ-ɗɛ**	'ball' [Mopti]

The two words suggest two perspectives on the same object in the world. The word **ɓɔɔd-ɛrɛ** 'ball' used in Toggere Kumba is formed with the objective word derivation. It describes a ball as the unmarked state of being compact. The form **ɓɔɔdɛ** 'ball' in Mopti suggests a combination with the suffix form **-dɛ** emphasizing its meaning as an instrument used for making a mass compact (and thus easy to handle?).

The infinitive

This suffix form **-dɛ** also marks the infinitive of a verb. The fact that the circumstantial meaning "intention" is part of the meaning of the infinitive has been discussed in section 6.1.4. A morpheme indicating the voice of the verb appears between the stem and the infinitive marker. Infinitives of middle voice verbs are marked by a morpheme **-aa-**. Passive verb infinitives are marked by a morpheme **-ɛɛ-**. The active verbs are marked by a verbal morpheme **-u-** which can be deleted when syllable structure conditions are not violated.

war-dɛ	'to come'
daw-dɛ	'to travel'
gas-u-dɛ	'to be perfect'
ʔuur-u-dɛ, ʔuur-dɛ	'to smell nice'
yin-aa-dɛ	'to swim'
bɔɓɓ-aa-dɛ	'to fall'
yɛɛw-ɛɛ-dɛ	'to miss, to be nostalgic, homesick'
jɛy-ɛɛ-dɛ	'to belong to'

The form of the infinitive marker is always **-dɛ**, except for the phonetically predictable allomorph **-ⁿdɛ** which occurs after active verbs that can end in a nasal consonant. Many times a verb stem ending in a nasal consonant occurs with the active voice marker **-u-**. Both forms **ʔunudɛ** 'to pound' and **ʔunⁿdɛ** occur; both are phonologically well-formed. The active voice marker **-u-** is always omitted following a verb stem combining with a verbal extension of the shape **-iC-**.

ʔun-u-dɛ, ʔun-ⁿdɛ	'to pound'
ɲaam-u-dɛ, ɲaam-ⁿdɛ	'to eat'
ɓam-u-dɛ, ɓam-ⁿdɛ	'to take'
ʔanⁿdin-ⁿdɛ	'to inform'

The practice in the Maasina orthography is that the prenasalization of the infinitive marker after stem final nasals is not written. The analysis of these sequences of homorganic nasals followed by voiced plosives has been discussed in chapter two (see section 2.3.3).

There are some nouns that seem to have meanings derived from the meaning of the infinitives of the related verbs.

juuldɛ / juuldeeji	'to pray; prayer; religious feast'
maaydɛ / maaydeeji	'to die; death (of people)'
yiddɛ / jilli	'to want, to love; desire, love'

These three words are possibly polysemous. The interpretation of these words as noun or as infinitive depends on the context. The suffix is here analyzed as the infinitive marker **-dɛ**. The meanings of the verb and the related noun are very similar. A prayer (whose meaning extends to a religious feast) equals praying, death equals dying, desire and love equal wanting and loving.

The suffix form -ⁿjɛ is the result of a merger of the suffix form -dɛ with a stem final palatal consonant. It occurs only in the word **jaaɲⁿjɛ** which has been found with three different plural forms in Maasina.

jaaɲⁿjɛ / jaaɟɟɛ	'herd consisting of several herds'
jaaɲⁿjɛ / jaaɟɛ	'place where herds gather'
jaaɲⁿjɛ / jaaɲɟɛ	'place where several herds are put up'

The word is related to the verb **jaaɟaadɛ** 'to arrive at the corral, home' ("arriver au bercail") and the noun **jaaɲelol/jaaɲeli** 'family, clan'. A rule whereby the final palatal consonant of the stem has assimilated to the initial consonant of the suffix could account for the form of the suffixes in these nouns.

*jaaɲ+dɛ > jaaɲⁿjɛ > jaaⁿjɛ	singular form
*jaaɲ+ʔɛ > jaaɲɟɛ	plural form

The different forms make it difficult to discover the precise etymology of this word. The locative meaning of the word **jaaɲⁿjɛ** referring to its use as a place for the gathering (the coming home) of different herds uniting one clan suggests that this exceptional form could have been derived using the circumstantial word derivation. It contains the suffix -dɛ indicating "purpose, usage".

7.2.4.4 THE GRADE D SUFFIX FORM -ⁿdɛ

The subjective word derivation is used in the formation of verbal participles. The grade D suffix -ⁿdɛ is identical in shape to the subject pronoun. It occurs as the suffix form in participles. Verbal morphemes indicating voice and aspect can occur in these participles. The subject pronoun ⁿdɛ often refers to a period of time. The class marker ⁿdɛ is also used as a concord in the question word "when" and in a relative sentence that starts with the adverb "when". The following word could be derived from these participles morphologically. The derivation is sometimes semantically opaque. The etymology of the word **ɓɛrⁿdɛ** would suggest that the heart is seen as the organ that gets angry. It should be checked whether there are idioms for anger that involve the heart.

Active voice completive participle:

hayhayⁿdɛ / kaykayɗɛ	'gall-bladder'	**haaɲudɛ**	'to itch'
ɓɛrⁿdɛ / ɓɛrɗɛ	'heart'	**ɓernudɛ**	'to get angry'
dabbuⁿdɛ / dabbulɛ	'cold season'	**dabbudɛ**	'to pass the cold season'
ɲaaguⁿdɛ / ɲaagulɛ	'request'	**ɲaagaadɛ**	'to beg, ask'
darⁿdɛ / darɗɛ	'place, function'	**daraadɛ**	'to stand'
jɔnⁿdɛ, jɔɔnⁿdɛ / jɔnlɛ	'seat'	**jɔɔɗaadɛ**	'to sit'

Passive voice completive participle:

ɲalaaⁿdɛ / ɲalaaɗɛ	'day'	**ɲalludɛ**	'to spend the day'
hiraaⁿdɛ / kiraaɗɛ	'dinner, supper'	**hiirdɛ**	'to pass the evening'
ɲamaaⁿdɛ / ɲamaalɛ	'debt'	**ɲalmaadɛ**	'to lend'
		ɲamlaadɛ	

There are a number of nouns that show a word formation which is similar to the formation of participles. There are some irregularities that need further research before these words can be established as participles. The problems with these words are the following: either no related verb can be found or the verbal marker occurring in the participle is irregular and does not correspond to the regular voice and aspect markers that normally occur in participles.

Mohamadou (1985:302) suggests that the suffix -ⁿdɛ is used in what he calls "resultative nouns". These nouns take the regular aspect and voice markers which occur in participles. The resultative meaning, however, is expressed by the (relative) completive aspect markers which occur in these nouns, not by the type of word formation which is identical to that of participles. The difference is that participles function as modifiers referring to a noun in the discourse, while these nouns are not modifiers, they function as independent nouns. The following sections discuss words with the subject marker -ⁿdɛ which are thought to be derived from participles but which take an irregular form of the participle.

There are a few words with a morpheme -ɔɔ-. This is no regular aspect or voice marker in participles. The hypothesis is that the resultative meaning comes from this morpheme -ɔɔ-. The suffix -ⁿdɛ has the same meaning of the subject concord as in the examples of other participles. The -ɔɔ- could be a special form of the middle voice marker, since middle voice is also linked with a resultative meaning. The nouns below express concepts which could be interpreted as the result of the action denoted by the verbs from which they are derived. But an explaination should be sought for as to why these words do not have one of the regular middle voice markers occurring in participles. The regular middle voice markers are -ɔtɔɔ- for incompletive middle voice participles and -ii- for completive middle voice participles.

ɓɔccɔɔⁿdɛ / ɓɔccɔɔɗɛ	'egg'	**ɓoccinⁿdɛ**	'to lay an egg'
ɟiiwɔɔⁿdɛ / ɟiiwɔɔlɛ	'rainy storm'	**ɟiiw-a**	'form a storm' [FT] (Zoubko 1980:551)

There are a few words with a morpheme -ɛɛ- which is not a regular voice-aspect marker in participles. The morpheme probably indicates a passive meaning since these words seem to be derived from passive verbs. This particular passive morpheme needs further explanation. The regular form of the passive in participles is -aa- for completive forms and -ɛtɛɛ- for incompletive forms.

yɛɛwɛɛⁿdɛ	'loneliness, solitude'	**yɛɛwɛɛdɛ**	'to miss, to be lonely'
yurmɛɛⁿdɛ / jurmɛɛlɛ	'pity, compassion'	**yurmɛɛdɛ**	'to be pitied'

Perhaps the passive marker -ɛɛ- and the middle voice marker -ɔɔ- are linked to a stative meaning which does not distinguish between a completive or incompletive meaning.

Another small set of words exists for which no related verbs can be found. For **ɓinⁿdɛ** 'fruit', a reanalysis of the stem in related words can possibly explain the occurrence of the subject marker -ⁿdɛ in this form.

ɓiɓɓɛ lekki	'fruit'	**ɓiɗɗɔ / ɓiɓɓɛ**	'child'
ɓinⁿdɛ / ɓiɗɗɛ	'fruit'	**ɓii ʔaadamu**	'the child of Adamu'

The regular expression for fruit is **ɓiɓɓɛ lekki** 'children of the tree'. The form of the stem is proposed to be ***ɓih**. Fruit names are formed by adding the -^{n}**dɛ** class suffix to the stem which is also used in the word for the tree name. The general word for fruit is based on the stem of **ɓiɗɗɔ** 'child' combined with the NDE class suffix. This word behaves like a participle and thus takes the subject pronoun -^{n}**dɛ** as its class suffix on the analogy of the formation of the word **ɓiɗɗɔ/ɓiɓɓɛ** 'child'. The underlying stem final [**h**] is deleted before the consonant initial suffix because [**h**] cannot combine with other consonants. Compensatory lengthening of the suffix initial consonant fills the time slot of the stem final consonant.

***ɓih + ^{n}dɛ > ɓin-^{n}dɛ**	'fruit'
***ɓih + ɗɛ > ɓiɗ-ɗɛ**	'fruits'

The analysis of the suffix -^{n}**dɛ** in the word **wii^{n}dɛ/billɛ** 'corral for cows' poses some problems. The following terms seem to be related to the word for corral in Maasina.

Maasina:	**wii^{n}dɛ / billɛ**	'corral for cows in the bush'
Gombe, Nigeria:	**winnde / bille**	'ruins'
(Arnott 1970a:118)	**biŋŋgel / ^{m}billon**	'small ruins'
	^{m}biŋŋga / ^{m}billo	'big ruins'
	wil-	'ruin, be ruined'
Nigeria:	**winde / bille**	'ruins'
(Taylor 1932:231)	**wila**	'ruin, despoil, rub out'
no dialect indicated:	**wiinde / biille**	'village or camp,
(Zoubko 1980:511)		especially abandoned'
	wil-a	'be in disorder'

A possible etymology could be that the word for **wii^{n}dɛ** 'corral' [lit. "that which is in disorder"] is formed by a participle based on the verb stem **wil-** 'to be in disorder'. This suggests that a semantic shift must have occurred in the meaning of the noun. The meaning for the word **wii^{n}dɛ** or **winnde** described by Taylor and Arnott is 'ruins'. The semantic change from "place which is in disorder" to "ruins" to "corral in the bush" is not impossible because the meaning "corral in the bush" implies that such a corral is often abandoned, and thus left in disorder. The meaning "village or camp, especially abandoned" given by Zoubko indicates the link between the two meanings found in Maasina and in Gombe. Another difficulty is that the related verb stem should have a long vowel given the alternative plural forms **biilɛ** 'corrals' and **biillɛ** 'corrals' when the word was carefully pronounced in Maasina.

This leaves a small number of words that show a prenasalized initial consonant of the NDE class suffix which cannot be explained phonologically, nor can -^{n}**dɛ** in such words be explained as the subject concord because no clearly related verb can be found.

hitaa^{n}dɛ / kitaali	'year'
ɟaaw^{n}dɛ	'harvest season'
huu^{n}dɛ / kullɛ	'thing'
lɔɔ^{n}dɛ / lɔɔɗɛ	'water jar'
dɛɛ^{n}dɛ / dɛɛɗɛ	'quarter, district'

The position taken here is that ultimately it should be possible to find a verb stem on which these words have built their participle form. The verb stem might perhaps be found through a historical comparison of forms in Maasina with the forms in other dialects or even forms that occur in other related languages. Or maybe the relation between the form and a verb stem is obscured by a semantic change in either the verb or the derived noun.

7.2.5 THE NGE CLASS

The NGE class contains a few semantic subsets in Maasina. The larger part of the NGE class contains a bulk of nouns denoting names and types of cows. Another smaller subset within the NGE class groups sources of light: **yiitɛ** 'fire', **jay^{n}gɛ** 'light' and **naa^{n}gɛ** 'sun'. The following nouns can make use of the concord **^{n}gɛ**. The word **yaŋ^{n}gɛ** 'ceremony' forms a subset on its own. Some speakers use the concord of the NGE class for the word **yaŋ^{n}gɛ** 'ceremony', others use the concord of the 'O class.

nagg-ɛ	'cow'
yiit-ɛ	'fire'
naa^{n}g-ɛ	'sun'
jay-^{n}gɛ	'light'
yaŋ-^{n}gɛ	'ceremony'

Some other nouns with a possible suffix of the NGE class suffix which use the concord of the 'O class are discussed in section 7.2.5.5.

The words sun, fire, and cow are often cited as the content of the NGE class (Arnott 1970a:75). The grouping of these terms has puzzled many, although the issue is only cautiously discussed in the literature. The hypothesis is the experience of the Fulbe with cows links these semantic subsets. An association between cow, fire, and sun can be found in the following myth collected by Bonfiglioli (1984:49). The story recounts how cows were given to the Woɗaaɓe in Niger:

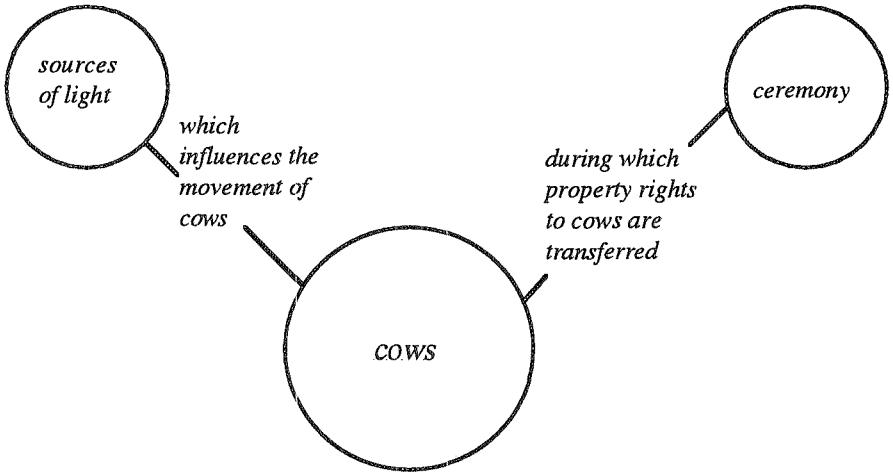
> A girl was made pregnant by the angel of the river. The girl gave birth to twins: two boys. When her father found out who fathered the twins, he asked the angel of the river for her wedding gift. Out of the river came a grey cow and a black bull. The mother and her sons followed the cows, but the animals were wild and they fled from people. By following the cows they went further and further into the wilderness. At night, they lit a fire, and the cows were attracted by the fire. So the night was spent around the fire. And each day they left and went even further. Bonfiglioli (1984:49)

In this story cows are attracted to the fire at night, during daytime when the sun appears the cows have an urge to travel. An important semantic subset of the NGE class denotes

"cows". The other words that can use the concord of the NGE class, the sun and the fire, can be related to cows in that they are sources of light which seem to have some control over the comings and goings of cows.

The word **yaŋⁿgɛ** 'ceremony' is connected with cows because this term includes only those ceremonies at which property rights to cows are transferred (see also section 7.2.5.5). The fact that the words **yiitɛ** and **yaŋⁿgɛ** can sometimes also make use of the concord of the 'O class seems to indicate that all words which do not describe cows are being removed from the NGE class in Maasina. The result is semantic simplification: only cows are then referred to with the concord of the NGE class.

Klingenheben (1963:71) also calls the NGE class the "cow-class" but he does not comment on a possible relation between terms like sun and fire and some other abstract nouns that belong to the NGE class in Aadamaawa. Arnott (1970a:75, 390) represents the semantic content of the NGE class by listing the three key terms "cow, "fire", and "sun". The following semantic network represents the content of the NGE class in Maasina.



Mukarovsky (1962b:132) gives the original semantic content of the NGE class as "the cow and anything that is like a cow". This content of the NGE class is proposed to refer to a pre-Islamic concept of the world. Essential in his proposal is the claim that once the sun was connected with the cow in the conceptual universe of the Fulbe. One of Mukarovsky's arguments for the connection between "sun" and "cow" is the fact that the words for "day" and "calf" are formed on the same stem **ɲal-**. In Maasina the stem **ɲal-** is found in the following words:

ɲal-ɛ / ɲalbi	'calf'
ɲal-ɔɔma	'in the daytime, in the afternoon'
ɲal-aaⁿdɛ	'daytime'
ɲall-udɛ	'spend the day, spend the afternoon'
ɲan-ⁿdɛ < ***ɲal-ⁿdɛ**	'day'
ɲawl-udɛ < ***ɲal-w-**	'be midday, be in zenith (of sun)'

Mukarovsky quotes an idiomatic expression collected by Gaden (1931:135) to demonstrate the metaphorical identification of "calf" and "daylight".

naa^{n}ge **ʔina** **ʔam-n-a** **ɓiyum**
sun LOC dance-CAUS-SUB child-her/his
lit: 'The sun makes her child dance.' fig.: 'The sun makes the air quiver.'

This expression describes the quivering of the air when vibrating with heat. Mukarovsky leaves it to the imagination of the reader to arrive at his conclusion from this saying. Possibly his reasoning could go like this: The vibrations in the air are depicted as the dancing of daylight. Daylight being generated by the sun is seen as product of the sun. Metaphorically, daylight is seen as the sun's child. The calf, child of the cow, and the daylight, child of the sun, are represented by the same root. This is thought to be an indication of an ancient cosmological image where sun and cow are connected. Mukarovsky makes allusions to **ɲalic**, the name of the god of the heavens meaning 'up high' in Dinka, to the word **ńíáál** 'heaven' in Nuer, and to Hathor who is the cow-goddess of heavens in Egyptian mythology. Mukarovsky proposes a pre-Islamic "solar bovine complex" [Sonnenrind-Komplex] for the Fulbe. He compares the image of the solar bovine to the image found in the rock-drawings in North East Africa. These drawings show bovines depicted with the sun's disc between the horns.

Mukarovsky's findings bring out some remarkable resemblances and fascinating metaphorical interpretations. But more solid cultural-historical evidence is needed to prove a link between the Fulbe's pre-Islamic concept of the universe with that of the Dinka, with that of the Nuer, and with the concept of the universe of the prehistoric Nagada culture of Upper Egypt. The stems ***ɲal-** for "calf" and "daylight" can also be seen as homonymous, their resemblance being simply coincidence.

The initial consonant of stems that combine with a suffix from the NGE class is taken from the continuant series. There are three suffix forms of the NGE class.

Suffix forms NGE class:

grade A: **-ɛ**	< ***ɣɛ**	objective word derivation
grade B: **-wɛ**	< ***-ɥ-ɣɛ**	associative word derivation; used after full word stems
grade D: **-^{n}gɛ**	< ***n-ɣɛ**	subjective word derivation

There is no suffix form of the NGE class in grade C. The word **naggɛ** 'cow' is sometimes analyzed as containing the suffix form **-gɛ**, but the consonant [g] is analyzed as part of the stem in this study. The absence of grade C words in the NGE class may be explained by the fact that the circumstantial derivation is not compatible with the meaning "cow". Cows are not denoted as instruments or places according to their purpose or intention. Cows are not circumstantial. They are essential, certainly in the ideology of the Fulbe .

7.2.5.1 THE GRADE A SUFFIX FORM -ɛ

As in all classes, the number of words combining with the grade A suffix is the largest. Most Fulfulde noun stems have a CV(V)C shape. Historically the suffix form -ɛ is derived from the form *ɣɛ whose initial continuant consonant was lost after consonant final stems. Some nouns derived using the objective word derivation combine with nominal stems, others with verbal stems. (More cattle names are provided by De Wolf 1985c).

yiit-ɛ / yiiteeji	'fire'
naa^{n}g-ɛ	'sun'
nagg-ɛ	'cow'
say-ɛ / cayeeji	'copper coloured cow'
daak-ɛ	'cow with different colour neck'
dumar-ɛ	'cow, head and tail same colour'
wumal-ɛ / gumali	'cow without horns'
jamal-ɛ / jamali	'cow, mottled, spotted with different colours'
sɔl-ɛ / coli	'spotted cow'
sul-ɛ	'cow, red with white spots'
wɔh-ɛ / bohi	'cow, front part coloured (red), behind white'
wudd-ɛ / guddi	'cow without tail'
wuul-ɛ / buuli	'cow with white spot on forehead'
tɔll-ɛ / tolli	'cow with only one horn'
waag-ɛ / baagi	'cow with white sides'
wadd-ɛ	'female calf, 1 year'
suum-ɛ / cuumi	'cow, completely white or black'
lett-ɛ / letti	'cow with vertical and horizontal horn'
sarŋ-ɛ / carɲi	'cow with horizontal horns, widely separated'
mulg-ɛ / mulgi	'cow without teeth'
ɲal-ɛ / ɲalbi	'calf'
rimar-ɛ / dimari	'cow that doesn't deliver calves (anymore)'
ruumt-ɛ / duunti	'milk cow, in village in rainy season'
ʔɔɔl-ɛ	'yellow cow'
fur-ɛ	'grey, dust coloured cow'
wan-ɛ	'black cow' (address term)
ran-ɛ	'white cow' (address term)
wɔɗ-ɛ	'red cow' (address term)

related verbs

suum-udɛ	'to burn'
lett-udɛ	'to squint'
rim-dɛ	'to give birth'
ruumt-udɛ	'to pass the rainy season'

verbs derived from the noun stems

sarŋinaadɛ	'to stick out'
mulgiɗiddɛ	'to have no teeth, to be(come) toothless'
ʔoolɗudɛ	'to be(come) yellow'
furɗudɛ	'to be(come) grey, dusty'
rawnudɛ	'to be(come) white'
ɲawl-udɛ	'to be noon, to be in zenith (of sun)'
wojjudɛ	'to be(come) red'

The arguments for analyzing the words **nagg-ɛ** as consonant final are given in section 7.2.5.3. The last syllable of the word **naa^{n}gɛ** 'sun' has the same form as the grade D suffix -**^{n}gɛ**. But Mukarovsky (1962b:134) has found a possible cognate proto-Bantu stem ***-langa** 'to shine'. The word **naa^{n}gɛ** has a regular CVVC stem if it is related to this stem. In that case, the stem **naa^{n}g-** can be analyzed as consonant final and it combines with the objective word derivation marked by the suffix -**ɛ**.

7.2.5.2 THE GRADE B SUFFIX FORM -**wɛ**

The suffix form -**wɛ** marks the associative word formation and occurs mostly after stems that are full words in themselves. Some clear examples are given below.

wɔɗɛɛwɛ	'red cow' (descriptive)	**wɔɗɛ**	'red cow'
ɓalɛɛwɛ	'black cow' (descriptive)	**ɓalɛ**	'black cow'
ranɛɛwɛ	'white cow' (descriptive)	**ranɛ**	'white cow'
lɛwlaawɛ	'cow resembling a hind'	**lɛwla**	'hind'
mɛrɛɛwɛ / mereeji	'cow without hump'	**mɛɛrɛ**	'nothing'
mulgɔɔwɛ	'cow without horns'	**mulgɔ**	'bald'
ɗiɗiiwɛ	'female calf, 2 years'	**ɗiɗi**	'two'
tatiiwɛ / tatiiji	'female calf, 3 years'	**tati**	'three'
nayiiwɛ / nayiiji	'cow, 4 years'	**nayi**	'four'
hɔɔbaawɛ / kɔɔbaaji	'cow with forward horns'	**kɔɔba**	'antelope'
lɛttɔɔwɛ / lettooji	'cow, one vertical and one horizontal horn'	**lɛttɔ**	'squinter' (Zoubko 1980:325)

The word **wɔɗɛɛwɛ** has in fact a double suffix of the NGE class. Its semantically complicated etymology of "cow that is associated with a semantic feature of a cow called **wɔɗɛ** ('white cow')" is explained in the discussion on adjectives describing colour terms (see section 8.1.3). Here it is only briefly indicated that **wɔɗɛ** is the name by which a red cow is called and **wɔɗɛɛwɛ** is the descriptive term which is used when talking about a red cow. The same is valid for the words **ranɛ** and **ranɛɛwɛ** and for **ɓalɛ** and **ɓalɛɛwɛ**. However, a herdsman told me that the term **ɓalɛ** would be "used only by someone who doesn't know anything about cows, a black cow is called **wanɛ**". The root. ***wan-** is also found in **^{m}ban-a** 'black donkey', a word that has the meaning of 'buffalo' in Fuuta Tooro and Ringimaaji.

Some nouns are suspected to be derived from full nouns which are either Fulfulde nouns or loan-words. Further evidence is needed to corroborate the status of the stem as a possible Fulfulde word or loan-word. The following word could be derived from the word **^{n}gaari** 'bull'.

gariiwɛ / gariiji 'troublesome cow, doesn't allow to be milked' < **^{n}gaari** 'bull'

The occurrence of two long vowels in adjacent syllables can result in the shortening of the first long vowel in this sequence. This accounts for the difference in vowel length in the word **mɛɛrɛ** 'nothing' and **mɛrɛɛwɛ** 'cow without hump'.

The forms of the following words suggest that they are built on vowel final stems, i.e. on full nouns or on loan-words. The nouns from which they are derived are not found in the collected data. The stem ***tɛrka-** with an internal class suffix **-ka** could perhaps be derived from a word referring to a type of multicoloured blanket. This is especially plausible since the suffix form **-ka** of the KA class is used mainly to refer to types of blankets. The meaning of **tɛrkaawɛ** in the periphery of Maasina and in the Haayre is not a multicoloured cow but a white or a light coloured cow.

tɛrkaawɛ / tɛrkaaji	'cow (lineage) with more colours'
tɛrkaawɛ wɔɗɛ	'cow: more colours, red dominant'
mɔrgaawɛ / mɔrgaaji	'cow: horns hanging forward'
motiiwɛ / motiiji	'cow: without horns'
wijaawɛ / bijaaji	'cow: horns hanging towards the cheeks'

The similarity of the above words with nouns which are clearly derived from full nouns is obvious, although the related nouns are not available. These forms are considered to have had a similar etymological history.

A few cow terms are agentive nouns derived from verbs. A verb stem is followed by the agentive marker **-ɔɔ-**. The agentive formation always combines with the continuant initial suffix form of the class suffix.

hawɔɔwɛ / kawooji	'cow that butts'	**hawdɛ**	'butt'
doppinɔɔwɛ	'cow with young calf that is not yet milked'	**doppin^{n}dɛ**	'crush, trample' (Zoubko 1980:138)

The verb gives a clear idea why such a cow would not be milked. The hypothesis in this study is that the morpheme **-ɔɔ-** forming the agentive noun is the class marker of the 'O class. Thus the agentive noun is also formed using the associative word derivation.

The stems in the following words can be considered as full words. The word formation based on a verb stem combining with the morpheme **-amaa-** 'serving for' selects the continuant initial suffix form **-wɛ** in the NGE class. Possibly, the stems of these words are conjugated verbs. The form **-amaa-** can be formed with the passive indefinite completive conjugational suffix **-amaa**.

ɓir-amaa-wɛ / ɓiramaaji	'milk cow'
duŋc-amaa-wɛ / duŋcamaaji	'cow, lent for a long time'
haɓɓ-amaa-wɛ	'cow, lent for a long period'

All stems attested with the morpheme **-amaa-** also occur in different participle formations with the prenasalized initial grade D class suffix **-^{n}gɛ** and the regular passive completive verbal marker **-aa-**.

ɓir-aa-^{n}gɛ	'milk cow':	"cow that has been milked"
duŋc-aa-^{n}gɛ	'lent cow':	"cow that has been pushed"
haɓɓan-aa-^{n}gɛ	'lent cow':	"cow that has been tied to s.o."

Similar word formations (verb stem + verbal marker + noun class suffix **-wɛ** instead of subject pronoun **-ⁿgɛ**) were elicited as the word for a sterile cow or a cow whose calf had died. Many terms were given as translations for these words. It is not impossible that the terms are euphemisms because of a taboo on talking about a "sterile cow" or "cow whose calf died". In Tenenku, a gentle herdsman hastened to add that such a cow in your herd can bring good luck to the rest of the herd. He actually confirmed all the terms given. A group of herdsmen in Fatooma first denied that such cows existed. They gave these words only when I insisted, expressing astonishment over the lack of such terms, stating that such cows did exist to my knowledge in my country (the Netherlands). Possibly, the different forms are related to the taboo on speaking about cows that suffer such misfortunes.

ⁿgaaⁿdaawɛ / ⁿgaaⁿdaaji	'sterile cow'
heegumaawɛ / keegumaaji	'milk cow whose calf died, one still milks her,
hewdumaawɛ / kewdumaaji	she is being milked after blowing in the uterus'
hɛwdaawɛ	id.
hɛɛwdaaⁿgɛ	id.

The words show different stems, all of them vowel final and most of them selecting the continuant initial suffix form of the class suffix. The form **heegumaawɛ** is possibly related to the word **hɛɛgɛ** 'hunger'. Such a cow gives a lot of milk because no milk has to be left for the calf, thus preventing hunger. The morpheme **-umaa-** is only found in the word **heegumaawɛ** and **hewdumaawɛ**. The form **-umaa-** combines with the continuant initial suffix form, like the stems ending in **-amaa-**. The form **-umaa-** is possibly the indefinite conjugational suffix for active voice verbs. The exact meaning of the indefinite is difficult to describe since its occurrence is rare.

The last three words seem to be built on the stem **hɛɛwd-** 'to be accompanied with many' which might also refer to the quantity of milk that can be taken from a cow which lost its calf. Shortening of the first long vowel occurs in a sequence of two syllables with long vowels in **hewdumaawɛ** and **hɛwdaawɛ**. The hypothesis is that the forms taking the suffix form **-wɛ** after a stem consisting of a verb root and a verbal marker have been subject to reanalysis. The stem of **hewdumaawɛ** is a full word, i.e. a verb stem with the active or passive indefinite conjugational suffix. A stem which is by itself a full word combines with the continuant initial suffix form **-wɛ**. This formation has been replaced by the more regular participle formation **hɛɛwdaaⁿgɛ** with the suffix **-ⁿgɛ**. Perhaps the taboo on "sterile cow" and "cow whose calf died" caused these words to remain combined with the unproductive morphemes **-umaa-** and **-amaa-** in one of their variants.

7.2.5.3 ERRONEOUS ANALYSIS OF THE SUFFIX FORM -gɛ

The form **-gɛ** does not occur as a class suffix of the NGE class in Maasina. A word final syllable with the form **-gɛ** occurs in two nouns. However, the consonant **[g]** should be analyzed as part of the stem. This analysis is supported by internal reconstruction and historical comparison of the Fulfulde form with words for 'cow' other languages. The last syllable of the following words in the NGE class has the form **-gɛ**.

naggɛ / nay	'cow'
wiigɛ / bijji	'heifer'

It is possible to analyze the underlying form of the stem in the word **naggɛ** 'cow' as ***na^{ʔ}** and to assume, with Klingenheben (1963:10), that regressive consonant assimilation has taken place. The stem final glottal stop cannot be adjacent to the initial consonant of the suffix *-**ɣɛ**. The contact of the consonants *[**ʔɣ**] could have resulted in the geminate [**gg**].

However, -**gɛ** is not the suffix form but -**ɛ**. Cognate words in the related languages Wolof and Serer indicate that the stem might well have ended in a velar stop. Wolof has no class suffixes, the word **nag** 'cow' ends in a voiced velar stop. Serer has the word **nak** 'cow' (Mukarovsky 1962b:133). Arnott (1970a:113) proposes the forms **na^{ʔ}-** and **nagg-** for the stem of the words for 'cow'. The consonant alternation **^{ʔ}/gg** occurs in stem final position. The unproductive consonant alternation **^{ʔ}/g** is also found word initially in the language. The stem of the words for cow in Maasina has the forms **nay-** and **nagg-**. The Gombe paradigm is given for comparison.

Maasina:		Gombe (Arnott's hyphenation):
nagg-ɛ ^{n}gɛ	'the cow'	**nagg-e**
nay ɗi	'the cows'	**na^{ʔ}-i**
nay-el ^{n}gel	'the little cow'	**na^{ʔ}-el, naggel**
nay-oy koy	'the little cows'	**na^{ʔ}-on**

A remnant of the stem final alternation **^{ʔ}/gg** is only found in the singular/plural formation in the paradigm of 'cow'. The diminutive forms are built on the plural stem. The plural stem **nay** 'cows' is a short form for the word **na^{ʔ}i** 'cows' which also occurs in Maasina. The stem final alternation **^{ʔ}/gg** is historically explained by the combination of a glottal stop with a velar continuant (***na^{ʔ}-ɣɛ > naggɛ**) in the singular and by the combination of two glottal stops (***na^{ʔ}-^{ʔ}i > na^{ʔ}i > nay**) in the plural. The [**y**] was a later result of loss of the glottal stop in the plural. Diminutive derivations occur in many forms, reanalysis of the stem occurs in both the singular and the plural forms.

A second word that is sometimes analyzed with a suffix form -**gɛ** is the word **wiigɛ** 'heifer'. The underlying form of the stem in the word **wiigɛ** 'heifer' is given as ***wiy-** by Klingenheben (1963:13). This means that the glide [**y**] is taken to be the stem final consonant which is realized as part of the long vowel [**ii**] before the initial consonant of the suffix [**gɛ**]. In the plural form **bijji** 'heifers' in Gombe the geminate [**jj**] is then explained as being due to an assimilation of the stem final [**y**] to the consonant initial glottal stop of the suffix -**^{ʔ}i** of the plural 'DI class. Arnott also takes the stem of the word **wii-gɛ** 'heifer' to be vowel final. He analyzes the consonant [**g**] as part of the suffix. The morpheme boundaries which are indicated by Arnott (1970a:121) result in the combination of the same stem with suffixes of different grades.

Gombe (Arnott)

grade C:	**wii-ge**	'heifer'				
	bii-gel	'little heifer'				
	^{m}bii-kon	'little heifers'				
grade B:	**bii-ji**	'heifers'	or	grade A:	**bijj-i**	'heifers'

In Maasina, there is evidence that the stem of **wiigɛ** can be analyzed as **wiig-** with a consonant final [**g**]. It was difficult to get the diminutive formation of the word 'heifer' in Maasina, because "if it was smaller it would be called something different" (yearling or calf). The diminutive forms of 'heifer' were refused by most consultants. The singular diminutive form **biigel** was given twice, its plural **^{m}biigoy** only once. The fact that the consonant [**g**] appears also in the plural is an indication that this consonant is stem final. The same stem found in 'heifer' is also found in a word **biigal** denoting a chicken that has reached the age of laying eggs. It is likely that these words are based on the same stem considering the fact that a heifer is a young cow of three to four years that has the age to give birth to her first calf.

Maasina:

wiig-ɛ ^{n}gɛ	'the heifer, cow at age of giving birth'
bijj-i ɗi	'the heifers'
biig-el ^{n}gel	'the little heifer'
^{m}biig-oy koy	'the little heifers'
biig-al ^{n}gal	'the chicken at the age of laying eggs'
biig-ɛ ɗɛ	'the chickens at the age of laying eggs'

The hypothesis is that the word **wiigɛ** has a stem **wiig-** that combines with the vowel initial suffix form **-ɛ**. The palatalization of the final consonant in the plural must have been caused by the high vowel [**i**] in the stem and in the plural suffix **-i**. The plural **biig-ɛ** 'chickens with age of laying eggs' has a clear stem final [**g**] that could by no means be attributed to the initial consonant of the suffix of the 'DE class.

So the words **wiigɛ** 'heifer' and **naggɛ** 'cow' which are sometimes analyzed in the literature as having the grade C suffix **-gɛ** are actually words with a stem final consonant where the form of the suffix is **-ɛ** (grade A).

7.2.5.4 THE GRADE D SUFFIX FORM -^{n}gɛ

The suffix form **-^{n}gɛ** marks the subjective word derivation which is used in the formation of participles. A number of participles have developed an independent meaning. Some clear examples of such nouns which are participles derived from related verb stems are given below. The proposed etymological and literal paraphrases are given between double quotes.

"that which has given birth":

ɓɛy^{n}gɛ	'milk cow with calf that still sucks milk'
ɓeynudɛ	'to give birth'

"(fire) which is worthless":

jaay^{n}gɛ	'small fire; light (of lamp)"
jaasudɛ	'to be worthless'

"that which is being pushed (in the village for giving milk during rainy season, this is not nice for a cow because of the many mosquitoes)":

naggɛ duɲcaa^{n}gɛ	'cow: left in the village'
duɲcɛɛdɛ	'to be pushed'
nay duɲci, nay duɲcaadi	'cows left in the village'

The word **haa^{n}gɛ** 'cow which has given birth' is formed with the stem **haab-** and the grade D suffix while its plural form **kaabi** combines with a suffix of grade A.

haa-^{n}gɛ / kaab-i	'cow which has given birth (at least once)'
kaab-ɔ / haab-uu-ɓɛ	'woman who has given birth (at least once)'
haab-id-a	'to have had children' [DO] (Zoubko 1980:210)

The stem **haab-** is also found in the denominal verb **haabida** 'to have had children' and the noun **kaabɔ / haabuuɓɛ** 'woman who has given birth'. Perhaps reanalysis of the denominal verb stem **haab-id-a** resulted in a verb stem **haab-** from which the participle ***haab^{n}gɛ > haa^{n}gɛ** "cow that has had children" was formed.

The following terms were found alternatively with the suffix forms **-ɛ**, **-wɛ** or **-^{n}gɛ**. Reanalysis is shown by the occurrence of two different suffix forms which combine with virtually the same stem and have the same meaning. The fact that some of these nouns are clearly taboo might have obscured their etymology, and thus the choice of their class suffix was susceptible to reanalysis.

grade D	**haɓɓanaa^{n}gɛ**	'cow lent for a long period'
grade B	**haɓɓamaawɛ**	'cow lent for a long period'
grade D	**hɛɛwdaa^{n}gɛ**	'milk cow whose calf died'
grade B	**hɛwdaawɛ**	'milk cow whose calf died'
grade D	**sootiŋ^{n}gɛ / cootindi**	'cow heavy with calf'
grade A	**sohotin-ɛ**	'cow heavy with calf'

As argued before, the participles **haɓɓanaa^{n}gɛ** 'cow: lent for a long period' and **hɛɛwdaa^{n}gɛ** 'milk cow whose calf died' are the more regular derivations.

"which is being tied to s.o.":	**haɓɓ-an-aa-^{n}gɛ**	'cow: lent for a long period'
cf.:	**haɓɓ-an-ɛɛ-dɛ**	'to be tied to/for someone'
	haɓɓ-amaa-wɛ	'cow: lent for a long period'
	haɓɓ-u-dɛ	'to tie'

The participle formation **hɛɛwdaa^{n}gɛ** is proposed to be a later formation replacing the unproductive formation with the indefinite completive of the word **hɛwdaawɛ**. The morpheme **-aa-** is the regular form of the passive voice and completive aspect in participles.

"which is with much (milk?)":	**hɛɛw-d-aa-ⁿgɛ**	'milk cow whose calf died'
cf.:	**hɛɛw-d-ɛɛ-dɛ**	'to be (accompanied) with much'
	hɛw-d-aa-wɛ	'milk cow whose calf died'

The verb stem of the verb **hɛɛwdɛɛdɛ** 'to be (accompanied) with much/many' in combination with the subject pronoun **ⁿgɛ** of the cow-class results in the paraphrase "cow which is accompanied with much (milk?)". The same stem is reanalyzed as a vowel final stem taking the continuant initial noun class suffix form in the word **hɛwdaa-wɛ**. Such a reanalysis is possible when the link to the verb is no longer obvious, perhaps because of a taboo.

The verb stem **sootin-** 'to cause to de-enchant' is found in the words **sohotinɛ** and **sootiŋⁿgɛ** for a cow that is about to give birth. Zoubko (1980:443) gives a verb stem **soh-a** 'enchant' and two agentive nouns which are derived from this stem: **sohoowo** 'sorcerer' ("sorcier") and **sohtinoowo** 'anti-sorcerer' ("anti-sorcier"). As a participle the etymology of **sootiŋⁿgɛ** would be "that which causes to undo enchanting". The reanalysis as a noun stem with the regular suffix form **-ɛ** after the consonant final stem is perhaps a later development.

"that which causes de-enchanting":	**sootiŋ-ⁿgɛ / cootindi**	'cow: heavy with calf'
	sohotin-ɛ	'cow: heavy with calf'
	sootin-a	'cause to undo enchanting'

The reasons for describing a cow heavy with calf as "undoing the enchanting" must be searched for in the system of beliefs involving cattle. The arrival of a calf in itself solves many problems and is the cause of joy. It is likely that more knowledge is hidden behind the etymology of the word **sohotinɛ** 'cow heavy with calf'. Perhaps the fact that the first milk has (medicinal) beneficial effects has something to do with the de-enchanting character of a cow heavy with calf.

7.2.5.5 THE CONTENT OF THE NGE CLASS: A DIALECT COMPARISON

The form of the last syllable in the following words from Maasina show a possible resemblance with the suffix of the NGE class.

Maasina	
tɔɔɲaaⁿgɛ ʔɔ	'insult, provocation'
hɛɛgɛ ʔɔ	'famine'
yaafɛ ʔɔ	'forgiveness'
yaagɛ ʔɔ	'reserve, shyness, respect'
yaŋⁿgɛ ʔɔ, ⁿgɛ	'ceremony (esp. marriage, name giving and male circumcision)'

A comparison of the Maasina dialect with the Aadamaawa dialect reveals that a number of words with a suffix of the NGE class in Maasina changed their class concord from NGE to the concord of the 'O class. There is actually one word **yaŋⁿgɛ** 'ceremony, celebration' which is sometimes used with a concord of the 'O class and sometimes with a concord of the NGE class. A similar change of concord must have occurred with some nouns in the

KA class and in the NGU class in this dialect. The same nouns with a concord of the 'O class in Maasina are found with a concord of the NGE class in other dialects.

Maasina		Aadamaawa (Klingenheben 1963:72))	
tɔɔŋaaⁿgɛ ʔɔ	'insult, provocation'	**tooŋaange nge**	'plague'
yaafɛ ʔɔ	'forgiveness'	**yaafuye nge**	'pardon'

Mukarovsky argues that a number of nouns which do not denote cows or the sun are marked as later introductions in the NGE class. Their plural formation is one argument for a later introduction, aside from the semantic deviation from cow terms. Words like **yiitɛ** 'fire' and **tɔɔŋaaⁿgɛ** 'plague' use the addition of the plural suffix **-ji**, an innovative plural formation, instead of replacing their singular suffix with a plural suffix. The abstract nouns in the NGE class in Aadamaawa are seen as later introductions into the NGE class. The main argument is the fact that they are based on Arabic loan-words. Klingenheben (1963:71) gives a number of abstract nouns and objects in the NGE class in the Aadamaawa dialect which do not occur in the NGE class in Maasina.

Aadamaawa : NGE class		
sumalle / sumalli	'water bottle'	
bulaame	'type of bird'	
ɓaraage	'red silk'	
bulaaⁿge	'type of (edible) fish'	
kaŋⁿge	'gold'	
gilgilwaaye	'child's game, making dizzy'	< **yiil-** 'go round'
tooŋaange	'plague'	< **tooŋ-** 'to suppress
duŋⁿgaye	'permission'	< **duŋⁿg-** 'permit'
barruye	'ban, warning'	< **barr-** 'warn'
fillaye	'story'	< **fill-** 'tell'
kawye / kawyeeji	'village'	< **ɓauyee** 'village' [Hausa]
yaafuye	'pardon'	< **yaʔfu** (imp.); **ʔafaa** 'forgive'
wasuye	'advice'	< **waṣṣaa** 'recommend'
suumaye	'fast'	< **(ya)ṣuumu** (imp.); **ṣaama** 'fast'
yerduye	'permission'	< **yarḍaa** (imp.); **raḍiya** 'agree'
fassaruuye	'translation'	< **fassara** 'translate'
hinnaye	'mercy'	< **(ya)ḥinnu** (imp.); **ḥanna** 'have mercy'

The last six examples are all based on verb stems that are loan-words from Arabic. The allocation of some of the words to the NGE class is doubtful considering the Fulfulde spoken in Jamaare in North Cameroon described by Noye (1989) where these nouns were not found with a concord of the NGE class, but with concords of other classes (mostly the 'O class).

Jamaare

kawye o	'village' < **ƙauyee** [Hausa]
tooɲaŋⁿge o	'provocation; tyrannic or unjust act'
barruye o	'warning, threat'
yaafuye o	'pardon, forgiveness'
wasuyeewol ⁿgol	'advice, recommendation'
hinnaye o	'pity, mercy'
suumaye o / ⁿdu	'fasting month'
yerduye o	'agreement, permission'
gilgilwaaye o	'game where children go round and round to get dizzy and fall on the ground'

These words also do not use the concord of the NGE class in the Fulfulde of the Ringimaaji.

ɓuʔum barruyɛ	'this warning'
ɓuʔum kawyɛ	'this corner of town'
ɓuʔum yaafuyɛ	'this forgiveness'
ɓuʔum hinnuyɛ	'this mercy, forgiveness'
ɓuʔum suumayɛ	'this fast'
ɓuʔum yerduyɛ	'this trust'
ɓuʔum yaakɛ	'this condition'
ⁿdɛʔɛ tɔɔɲaŋⁿgɛ	'this trouble'
ⁿdɛʔɛ fillayɛ	'this parable'
ⁿdɛʔɛ duŋŋayɛrɛ	'this permission'

In Ringimaaji the concord of the NGE class evokes the idea of a cow. This is also expressed by the following proverb. This proverb is said to be very provocative and insulting. It describes the terrible situation of a Pullo without cows.

ⁿgɛʔɛ kam ʔɔ wal-aa ʔanⁿd-aa hiitɛ kɔ naaⁿgɛ
CL-this TM he be-N know-N fire or sun
'Concerning this (of the NGE class: cow), he knows but the fire and the sun.'

Many of the terms with a NGE class suffix can be related to religion and ceremonies. Especially the deverbal derivations in Aadamaawa like **suumayɛ** 'Ramadan, fast' and **yaafuyɛ** 'forgiveness' and **tɔɔɲaŋⁿgɛ** 'provocation, plague' do give this class a content which can be linked to both the Islamic and pre-Islamic systems of belief.

There are two possibilities: One alternative is that the addition of the words not describing a cow but relating to ceremonies and moral ethics was an innovation of the Aadamaawa dialect. The other alternative is that the words related to ceremonies and moral ethics were part of proto-Fulfulde, but they changed their concord in the Maasina dialect as a result of tension between a certain interpretation of Islamic law and the traditional system of beliefs related to cows. This tension can also explain why a game like **gilgilwaaye** changed its concord. Games are especially played during ceremonies in Maasina, but Islam

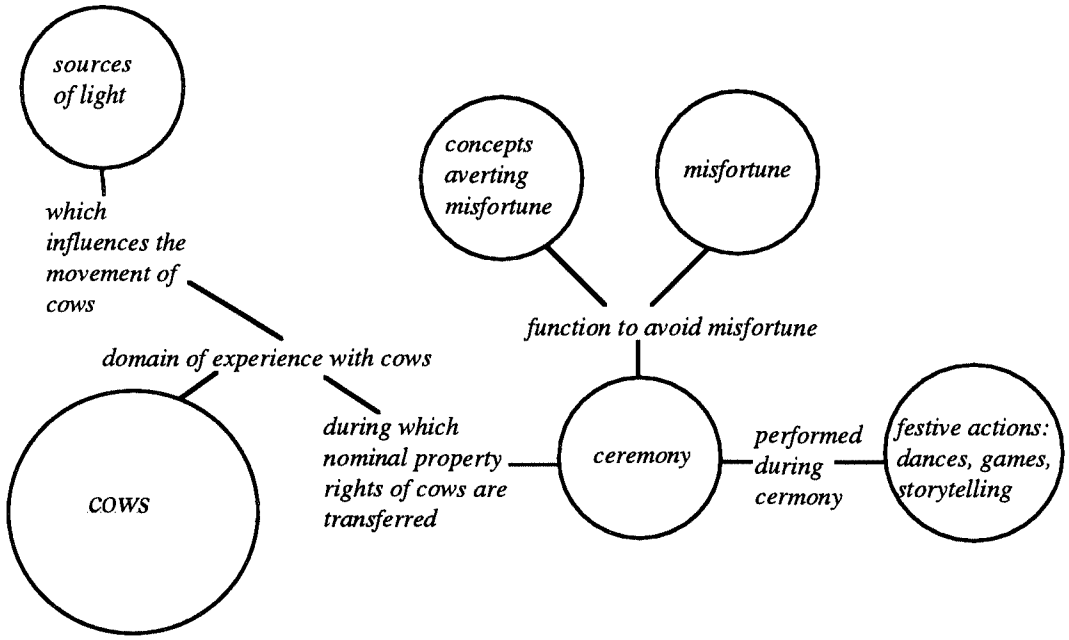
is said to forbid games in Maasina. Thus in Maasina the NGE class could have been reinterpreted with only a secular meaning of cows. The 'O class is indeed a class for religious terms in Maasina, so a shift of religious terms to that class can be semantically explained.

The term **yaakɛ** could be linked to the NGE class because it is a dance performed during ceremonies, although several other meanings have also been ascribed to it in the literature. It is only found with the concord of the NGE class in the Fulfulde of the Dageeja in North Cameroon (Labatut 1973:313). Its form shows that it is unlikely that the actual suffix of this word is from the NDE or 'O class with which it occurs in other dialects. The suffix -ɛ is neither a possible suffix form of the NDE class, nor of the 'O class. These are morphological reasons for assuming that the original class of the word **yaakɛ** was the NGE class which changed its concord in other dialects.

Niger:	**yaake**	'circle dance in which men compete in charm and beauty' (Beckwith 1983:180, 198)
Nigeria:	**yaake**	'appearances, looks, shape, form, condition, standard, stage, state, period, spirit' (Taylor 1932:225)
Aadamaawa:	**yaake o**	'appearance; state, position; behaviour' (Zoubko 1980:528)
North Cameroon, Dageeja:	**yaake ⁿge**	'turning circle of young men, dancing and singing with a stick on their shoulder' (Labatut 1973:313)
North Cameroon, Jamaare:	**yaake ⁿde**	'period; physical condition' (Noye 1989:400)
Cameroon, Ringimaaji:	**yaakɛ ɗum**	'condition; mate'

Only tentative hypotheses can be made about the possible direction and the motivation for the change of concord and class of words with a suffix of the NGE class. The present hypothesis concerning the semantic content of the NGE class takes the meaning "cow" as a key-term to which other semantic categories were linked by association. The word **yaŋⁿgɛ** 'ceremony' is linked to cows because it refers to ceremonies where transfer of property rights to cows take place. The word **yaŋⁿgɛ** 'ceremony' describes both **lamru** 'name giving day' and **kurtuⁿgu** 'wedding'. Property rights to cows are transferred from the parents (both father and mother) to their child at birth, celebrated during **lamru** 'name giving day'. Part of **kurtuⁿgu** 'wedding' is the transfer of property rights to cows from the husband to his wife (not to her relatives), on the basis of which she can sell the milk or trade it for cereals. My informants disagreed about whether **taadorɗi** 'circumcision' was a **yaŋⁿgɛ** 'ceremony' or not, possibly because it does not often involve the transfer of cows. The names of games and dances were/are linked to the NGE class because they are played during ceremonies. Words describing misfortunes like **tɔɔɲaaⁿgɛ** 'plague' and **hɛɛgɛ** 'famine' are possibly in the NGE class because of a belief that a proper execution of the ceremonies can prevent misfortunes from happening. The later addition of religious terms derived from Arabic loan-words to the NGE class in the eastern dialects can also be explained by the fact that Islam brought new ideas about the correct execution of ceremonies. Some Islamic religious

terms were then integrated into the NGE class on analogy of these ceremonial terms, especially words which denote concepts relating to the avoidance of misfortune like **barruyɛ** 'warning' and **yaagɛ** 'respect, reservedness, and behaviour showing these'. A proposal for the semantic content of the NGE class in proto-Fulfulde which is based on the assumption that the words discussed here were indeed members of the NGE class is represented by the following network.



Language can provide hypotheses about the culture of its speakers on the basis of semantic data. The semantic categorization of words in noun classes discloses interesting semantic information. These hypotheses for the cultural associations which could explain certain semantic groupings should be confirmed by extra-linguistic data. The hypotheses postulated here concerning the different semantic motivations for the grouping of nouns are tentative.

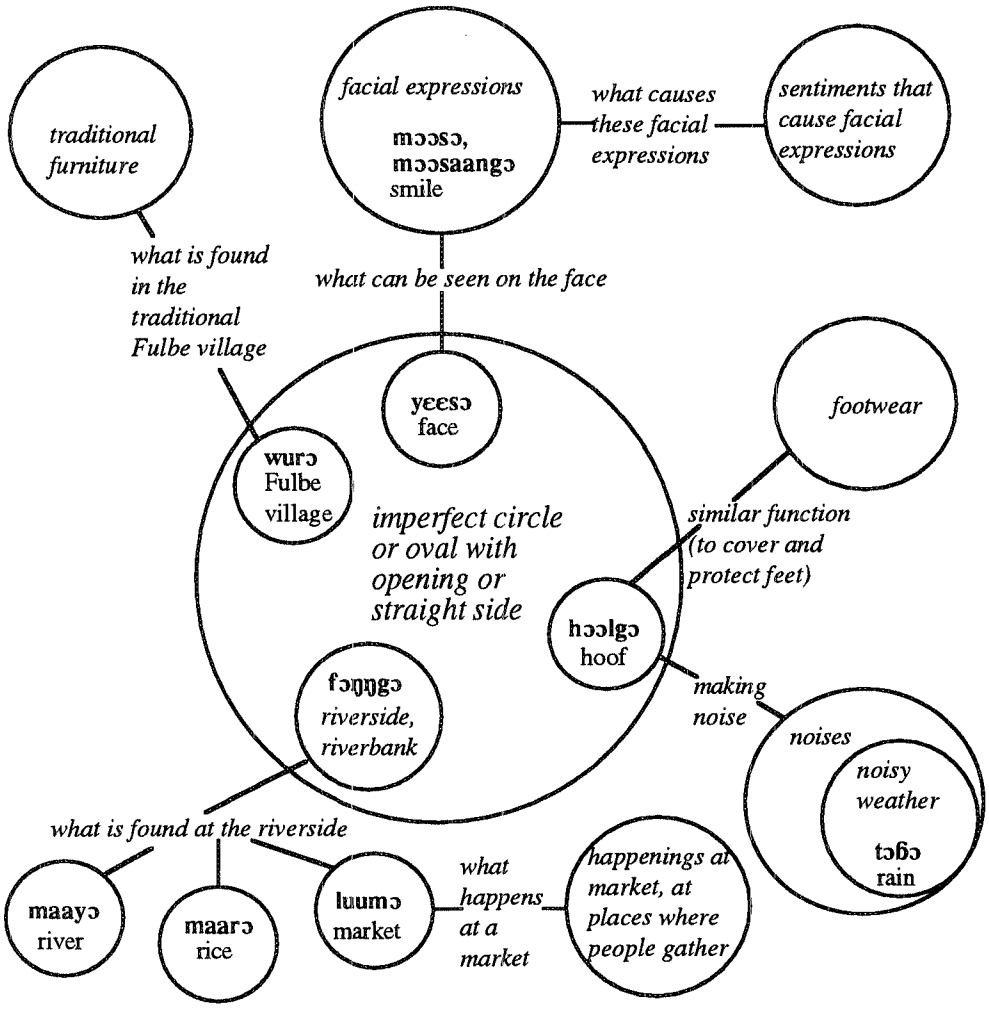
7.2.6 THE NGO CLASS

A prevailing semantic feature of the NGO class is the fact that the words often describe objects with the shape of an imperfect circle, i.e. round or oval with one straight side or with an opening. A bracelet, a kraal, a Fulbe village, and a rib have a shape which is circular with an opening. The bracelet typical for this region has an opening on one side. A hoof, a hoe, a lance a sand dune, a riverbank, a nail, and the hump of a cow have a shape which is round or oval with one straight side. Possibly, the oval form with one straight side is also the motivation for the occurrence in this class of the word **juŋⁿgɔ** 'hand' which has extended its meaning to comprise the lower arm and hand. The word **yɛɛsɔ** 'face' is also in the NGO class because of its oval form, the forehead is the straight side of the face.

Other semantic clusters are linked to words with this shape. Some abstract nouns could be linked to this class via the facial expressions which they cause in the face (**yɛɛsɔ**) which has a round shape. All footwear such as a shoe, a sandal, and a boot are included in the

NGO class in connection with the word **hɔɔlgɔ** 'hoof' because they all function to protect the foot. The word **hɔɔlgɔ** 'hoof' which is derived from the verb stem **hɔɔl-** 'make noise' is linked to the word **hɔɔlɔ ⁿgɔ** 'noise' which occurs in the NGO class in the Aadamaawa dialect. Words describing noises like a cry, a bark, and a whistle are grouped together with the word noise. This is despite the fact that the word **sɔyfa ka**, **ʔɔ** 'the noise' itself in Maasina is in the 'O or KA class. It is probably a loan-word from Arabic. Some weather terms such as **tɔɓɔ** 'rain', **fɛɲaaⁿgɔ** 'thunder', and **maɟɟaaⁿgɔ** 'lightning' denote "noise making weather" and they are in the NGO class because of their association with noise. Lightning is thought of as making noise, just like thunder. The sound-imitating ideophone for thunder is **gudududu**, an ideophone for lightning is **karrrr**.

The associations around which most words in the NGO class can be grouped are represented in the following network.



imperfect circle with one		*traditional furniture*		*noises*	
straight side or opening		**lɛɛsɔ**	bed	**wullaa^{n}gɔ**	cry
wurɔ	Fulbe village	**daagɔ**	mat	**wuttaa^{n}gɔ**	whistle
hɔggɔ	kraal	**sɛkkɔ**	matting	**fɔɔfaa^{n}gɔ**	breath
jawɔ	bracelet	*facial expressions*		**ʔuumaa^{n}gɔ**	groan
yɛɛsɔ	face	**mɔɔsɔ,**		*noisy weather phenomena*	
jɔŋ^{n}gɔ	hump of a cow	**mɔɔsaa^{n}gɔ**	smile	**tɔɓɔ**	rain
labbɔ	lance	*human sentiments causing*		**fɛɲaa^{n}gɔ**	thunder
waɓɓu^{n}gɔ	cheek	*facial expressions*		*footwear*	
wirɔ	rib	**sɛyɔ**	joy	**fadʔɔ**	sandal
juŋ^{n}gɔ	hand	**miilɔ**	thought	**kurfanuuwɔ**	boot
hɔɔlgɔ	hoof	*semantic field of riverside*		**sulɛɛwɔ**	shoe
jalɔ	hoe	**fɔŋ^{n}gɔ**	riverside, -bank	*happening at market*	
waam^{n}gɔ	hill	**maayɔ**	river	**fijɔ**	game
sɛɛnɔ	sand dune	**maarɔ**	rice	**sippɔrɔ**	organized fight
fɔŋ^{n}gɔ	riverside, riverbank	**luumɔ**	market	**dukɔ**	loud quarrel

A number of nouns in the NGO class denote traditional furniture like **lɛɛsɔ** 'bed' and **daagɔ** 'mat' and can be associated with what is traditionally found in the **wurɔ** 'Fulbe village'. The semantic field of **fɔŋ^{n}gɔ** 'riverside' contains the word **maarɔ** 'rice' and names of specific rice species which are cultivated in places where the river floods and places them with **maayɔ** 'river' in the NGO class. The semantic field of the riverside also accounts for the word **luumɔ** 'market' in the NGO class. The market often takes place at the riverside where mooring places of boats are.

The fact that the word **maarɔ** 'rice' is a member of the NGO class is peculiar. The importance of the cultivation of rice in Maasina is perhaps the reason why it is found in the NGO class and not in the KO class denoting grasses or in the NDI class denoting cereals. Rice is the basic food in Maasina. The expression **ɲaamudɛ maarɔ** 'to eat rice' is a metaphor for speaking Fulfulde in this dialect area. The importance of its cultivation at the riverside might account for its membership of the NGO class. It is even more remarkable to see that in Aadamaawa the word **maaroori** 'rice' has actually been put in the NDI class, like other grains. According to Zoubko (1980:340), the word **maarɔ** 'rice' is also used with the concord of the KO class like other grasses but it is not clearly stated in which dialect. Zoubko states that **maarɔ** 'rice' is a loan-word from Soninke. This is disputed by Tioulenta (1991:293-298).

The generic terms **gɔrɔ** 'kolanut' and **maŋ^{n}gɔrɔ** 'mango' are loan-words integrated into the NGO class because of their final vowel [ɔ] and motivated by their hoof-like shape. Being loan-words, their integration in the NGO class gives additional evidence for the productive application of the semantic categorization on basis of a hoof-like shape (oval or circle with a straight side or opening) to words in this class.

The initial consonant of stems that combine with a suffix of the NGO class is taken from the continuant series. There are four suffix forms of the NGO class. Their forms and meanings are summarized in the table below.

Suffix forms of the NGO class:

grade A:	**-ɔ**	objective word derivation
grade B:	**-wɔ**	associative word derivation
grade C:	**-gɔ**	circumstantial word derivation: instruments or places associated with NGO class characterized by their purpose or use
grade D:	**-ⁿgɔ**	subjective word derivation

The distribution and possible differences in meanings of the different suffixes are discussed and exemplified in the following sections.

7.2.6.1 THE GRADE A SUFFIX FORM -ɔ

The following words are nouns which are derived from nominal stems using the objective word formation marked by the suffix -ɔ in the NGO class. They are listed in such a way that they show the semantic groupings as described above (see 7.2.6).

hoof-shape

jaw-ɔ / jawɛ	'bracelet'
fad'-ɔ / pad'ɛ	'shoe'
tɔll-ɔ / tɔllɛ	'one element of a pair'
jal-ɔ / jalɛ	'hoe'
labb-ɔ / labbɛ	'lance'
ɓaaw-ɔ	'behind (rude)'
wɛcc-ɔ / bɛccɛ	'chest, rib cage (sg. one side; pl. the whole)'
wir-ɔ / birɛ	'rib'
yɛɛs-ɔ / yeesooji	'face'
gɔr-ɔ	'kola-nut'
maaⁿgɔr-ɔ, maŋⁿgɔrɔ	'mango (generic term)'
wur-ɔ / gurɛ	'a village, camp of the Fulbe'
sɛɛn-ɔ / cɛɛnɛ	'sand plain, dune'
fɛrr-ɔ / pɛrrɛ	'bush with trees, wood (on elevation)'

noise and noisy weather terms

tɔɓ-ɔ / toɓooji	'rain'

on the riverside

maar-ɔ / maarooji	'rice'
luum-ɔ / luumooji	'market'
sakɔr-ɔ / sakorooji	'daily market'
maay-ɔ / maayooji	'river'

traditional furniture

lɛɛs-ɔ / leesooji	'wooden bed, typical of Fulbe'
daag-ɔ / daagɛ	'mat'
sɛkk-ɔ / cɛkkɛ	'matting (wall decoration)'

abstract nouns referring to emotions which are related to certain facial expressions

sag-ɔ / sagooji	'wish'
maasiib-ɔ / maasiibooji	'disaster, plague'

The words which are derived from a verb stem combining with the suffix **-ɔ** marking the objective word formation denote objects and states which are linked in an unmarked way to the related verb. The following examples show such unmarked cognate objects.

fijɔ / pijɛ	'game, playing drums, feast'	**fijudɛ**	'to play'
haɓɔ / haɓooji, haɓooli	'fight'	**haɓudɛ**	'to fight'
miilɔ / miilooji	'thought'	**miildɛ**	'to think'
sippirɔ / sippirooji	'fight (organized, sport)'	**sippirdɛ**	'to fight'

These words are unmarked objects with regard to their derivational composition in relation to the verb stem from which they are derived. One plays a game, one fights a fight, one thinks a thought. The words can occur in any syntactic slot which can contain a noun. The following words show the objective word derivation of inchoative verbs.

sɛyɔ	'joy'	**sɛyaadɛ**	'to be(come) happy, to enjoy'
tɔɓɔ / toɓooji	'rain'	**toɓudɛ**	'to rain, to start raining'
yɔɔrɔ	'dryness, drought'	**yɔɔrdɛ**	'to be(come) dry, to dry up'

The objective word derivation in combination with inchoative verbs always describes the unmarked state following the change of state expressed by the inchoative verb. These verbs use the completive conjugations to indicate that this state is taking place in the present.

ʔana toɓi	'It rains.'
mi seyikɛ	'I am glad.'
ʔana yoori	'It is dry.'

Some of the nouns listed with the nominal stems could of course also be deverbal. The ignorance about some of the related verbs is unavoidable in a corpus of only 4000 words.

7.2.6.2 THE GRADE B SUFFIX FORM **-wɔ**

The suffix form **-wɔ** marks the associative word derivation. It is attached to stems that are either full nouns or loan words.

hum^{m}bɛɛwɔ / kum^{m}bɛɛjɛ	'paddle' < Sorogo **kumbe**
sulɛɛwɔ / sulɛɛjɛ	'shoe' < French **soulier**
kurfanuuwɔ / kurfanuujɛ	'boot'
jaanuuwɔ / jaanuujɛ	'stirrup (big type)'

The first two words are clearly loan-words. The sources of the stems of the last two words have not yet been traced. The words given here are integrated into the NGO class. The last three words are in the NGO class because of their association with the word shoe. The word **hum^{m}bɛɛwɔ** 'paddle' probably belongs to the NGO class because of its imperfect circle or hoof-like shape, another possible semantic link could be its use on rivers.

7.2.6.3 THE GRADE C SUFFIX FORM **-gɔ**

Only a few words combine with the form **-gɔ** as class suffix. As in other classes, the suffix form of the circumstantial word derivation is a combination of the class marker and the circumstantial word derivation expressing "mode, purpose, intention". Words with the suffix **-gɔ** denote mainly places and instruments described by their purpose or usage. The circumstantial extension itself occurs in the surface form of the following example.

remir-gɔ / demirɗɛ 'agricultural tool' < **remir-dɛ** 'to cultivate with sth.'

The suffix **-gɔ** can also be attached to stems where the circumstantial extension does not occur in its surface form. Although the instrumental marker does not occur in the stem of the word **ɲɔrgɔ** 'winnow', its instrumental meaning and its subsequent choice of the **-gɔ** form of the class suffix is the reason for its analysis as a word derived with the circumstantial derivation .

ɲɔrgɔ / ɲɔrɗɛ	'winnowing basket'
hɔɔlgɔ / kɔɔlɗɛ	'hoof, nail'
hɔggɔ / hoggooji, kɔwlɛ, kɔggɛ	'kraal fenced off with thorn-bush'

The etymology proposed for the word **hɔɔlgɔ** 'hoof' is a derivation from the verb stem **hɔɔl-** 'to make noise'. This verb still occurs in the Aadamaawa dialect. The etymology of the word in the circumstantial derivation can be paraphrased as "imperfect circle shaped thing used for making noise". The Maasina word **hɔɔl-gɔ** 'nail' also occurs in Zoubko (1980:241) with the prenasalized form of the suffix: **hol-ngo** 'nail, hoof' with the abbreviation [M] to indicate that this form was found in a source describing Maasina. The word **hol-ngo** 'nail, hoof' is formed using the subjective word derivation which gives a paraphrased etymology as 'that which makes noise'. The form of the word 'hoof' is **hoolgo** in Fuuta Tooro (Zoubko 1980:243). This shows that words expressing the same concept can have different derivational compositions emphasizing different aspects of that concept: a hoof seen as something that one can make noise with or a hoof seen as making noise itself.

The proposed etymology for the word **hɔggɔ** 'kraal' is "an imperfect circle-shaped dwelling place used for enclosing sth." describing an 'enclosure'. This meaning has developed into the more specific meaning of 'enclosure for cows' or 'kraal'. The word must be derived from the verb stem **how-** 'fence off/in, enclose' (Klingenheben 1963:74). The plurals **hoggooji** and **kɔggɛ** show that the geminate consonant [**gg**] has been reanalyzed as part of the stem. The whole singular form is taken as the stem in the most frequently used plural form **hoggooji**. Only the plural form **kɔwlɛ** indicates that the geminate [**gg**] has been derived from the fusion of a stem final consonant with a suffix initial consonant. The presence of the instrumental meaning (purpose, use) is considered to be sufficient to support the separate semantic contribution of the circumstantial grade marker in the suffix form **-gɔ**.

7.2.6.4 THE GRADE D SUFFIX FORM **-ⁿgɔ**

Grade D nouns form a participle with the class suffix **-ⁿgɔ**. The verbal grade D stems can be followed by a verbal marker which expresses aspect (completive or incompletive) and

voice (active, middle or passive). The verbal marker which denotes active voice and completive aspect is **-u-** or Ø (zero) in participles. The active voice marker **-u-** which occurs in grade D nouns is often omitted.

The nouns which are derived from verbs as participles always denote the subject of the verb from which it is derived. The following words need some further explanation for their semantic interpretation. Their morphological shape indicates that they are derived from participles whose meanings have become specialized.

"(village) which has migrated":	**fɛrⁿgɔ**	'migration'
	ferudɛ	'to disperse, to migrate'
"that which is old, worn out":	**hiiⁿgɔ**	'first occupation'
	hiiɗ-udɛ	'to be old, worn out'
"that which is long"	**juŋⁿgɔ / juuɗɛ**	'hand and lower arm'
	juutudɛ	'to be long'
"that which has selected, chosen":	**sumⁿgɔ / cuɓɛ**	'choice'
	suɓaadɛ	'to choose'
"that which is fastened":	**fɛɗɛɛⁿgɔ / peɗeeli**	'nail'
	feɗudɛ	'to fasten, to fix, to button up'

No related verbs can be found for some words with the **-ⁿgɔ** class suffix. The morphology of these words is so similar to other participles that the verb is considered to have been lost, or else a semantic change in the verb or the participle has prevented me from finding the related verb of the following words.

fɔŋⁿgɔ / foŋⁿgooji, pɔɔmlɛ	'bank, waterside, riverside'
ɟɔŋⁿgɔ / ɟɔllɛ, ɟɔnlɛ, ɟɔŋⁿgɛ	'hump of cow'
waaⁿgɔ / banɗɛ	'lance'
waamⁿgɔ / baamlɛ	'hill'
waɓɓuⁿgɔ / gaɓɓulɛ	'cheek'
wiifɔɔⁿgɔ / biifɔɔlɛ	'wing'
wippɔɔⁿgɔ / bippɔɔlɛ	'wing'

Further historical comparative study of the Fulfulde language and other related languages will be needed to give the precise etymology of the words above.

It is especially the participles formed with the verbal marker **-aa-** which form nouns denoting noises and noisy weather phenomena. The verbal marker **-aa-** indicates passive voice and completive aspect.

ʔayaaⁿgɔ	'light; flash of lightning'
faraaⁿgɔ	'neighing of horse or donkey'
fɛɲaaⁿgɔ / pɛɲaali	'thunderclap'
fɔɔfaaⁿgɔ / pɔɔfaalɛ, pɔɔfaali	'breath, respiration'
gidaaⁿgɔ / gidaali	'thunder, rumbling of thunder'
hijaaⁿgɔ / kijaali	'neighing, sound of a horse'
majaaⁿgɔ, majjaaⁿgɔ	'lightning'

wuttaa^{n}gɔ / guttaali	'whistling, flute'
jɔwtaa^{n}gɔ / jɔwtaali	'greeting'
wɔfaa^{n}gɔ / gɔfaali	'bark'
ʔuumaa^{n}gɔ / ʔuumaali	'groan, sigh'
majaa^{n}gɔ	'wink'

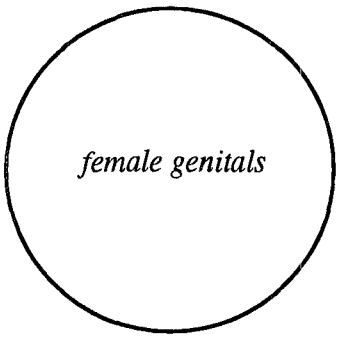
All the terms denoting noises given above can be related to existing verbs in the Maasina dialect. Only a few are given here to illustrate the connection between these verbs and the related participles denoting the noise.

wɔwlaa^{n}gɔ	'cry'	**wowludɛ**	'to cry'
ŋaakaa^{n}gɔ	'sound of a donkey, braying'	**ŋaakudɛ**	'to bray'
ʔillaa^{n}gɔ / ʔillaali	'sneeze, sneezing'	**ʔilludɛ**	'to sneeze'

The passive completive marker -**aa**- with the subject pronoun -**^{n}gɔ** makes the etymology of the word **wɔwlaa^{n}gɔ** literally "that which is being cried", thus "a cry". The same etymological scheme can be applied to all the other words denoting noises which are related to verbs expressing the action of making those noises.

7.2.7 THE NGU CLASS

There are only three words left in the NGU class in the Fulfulde spoken in the centre of Maasina. They all denote female genital organs, more precisely those genital organs which are affected by clitoridectomy*: the clitoris which is cut away, the labia which are amputated or mutilated, and the vagina which is sometimes partially closed by suturing the amputated labia using thorns as stitching material. The content of the NGU class as defined by the use of the concord **^{n}gu** is a set of words that share one semantic feature, i.e. they are a female genital organ.



^{n}guug-u ^{n}gu	'the clitoris, the vagina'
ton-u ^{n}gu	'the labia'
ɲamm-u ^{n}gu	'the vagina'

* It is impossible for the author to remain impartial on this subject. The closest approximation possible to objectivity can only be given by warning for the presence of my opinion and by indicating explicitly that I can neither understand, nor approve of this custom, especially because it is done to very young girls who cannot decide for themselves whether they want to undergo this treatment or not. The reader can form his/her own judgement, or not.

It is difficult to inquire about the exact meaning of these words. The most common translation given for all three words is "female sexual organ". A large number of words use the concord of the NGU class in other dialects (e.g. Ringimaaji). The number of nouns in the NGU class is so small because the concord marker of the NGU class is a taboo word in the Fulfulde dialect of Maasina. A taboo on the words denoting female genitals in the NGU class is extended to a taboo on the class concord. Maasina speakers say that the reason for the taboo of the concord **ⁿgu** is its resemblance with the word **ⁿguugu** 'clitoris'. The taboo is quite consciously present. People either started laughing or they looked away, shocked, when I was trying out forms of the demonstrative with the concord of the NGU class with other words. One person in Toggere Kumba claimed it was very well possible to say **ⁿguu ɓoŋⁿgu** 'this mosquito', but she had a lot of fun trying to convince her friends and family who shyly insisted that it is better to say **ʔɔɔ ɓoŋⁿgu** 'this mosquito'. Other words which have a class suffix of the NGU class use the concord of the 'O class as their concord in Maasina. That words with a suffix of the NGU class in Maasina once also used the concord of the NGU class, becomes apparent from a comparison of these words with the same words in other Fulfulde dialects where they still use the concord of the NGU class.

Maasina	Ringimaaji	
pucc-u ʔɔ	**pucc-u ⁿgu**	'the horse'
ᵐbaal-u ʔɔ	**ᵐbaal-u ⁿgu**	'the sheep'
lii-ⁿgu ʔɔ	**liji-ⁿgu ⁿgu**	'the fish'
ᵐbuubu ʔɔ	**ᵐbuub-u ⁿgu**	'the fly'
ɲuuɲ-u ʔɔ	**ɲuu-ⁿgu ⁿgu**	'the ant'
ⁿgil-ⁿgu ʔɔ	**ⁿgil-ⁿgu ⁿgu**	'the worm, caterpillar'
ɓoŋ-ⁿgu ʔɔ	**ɓow-ⁿgu ⁿgu**	'the (type of) mosquito'
ᵐbas-u ʔɔ	**ᵐbas-u ⁿgu**	'the skin bag; scrotum'
wɔj-ɛrɛ ⁿdɛ	**ᵐboj-u ⁿgu**	'the hare'
ᵐbɛɛw-a ba	**ᵐbeʔ-u ⁿgu**	'the goat'

The last two words have not only changed their concord, their suffix is also taken from this other class. This indicates that a change in class can eventually also change the class suffix.

The taboo of this class marker falsifies the statement that a class marker has no meaning. How can a word be taboo if it has no meaning associated with it? The association of the meaning of the NGU class with the female genitals can also be shown by the comparison of the etymology of the following two words.

ton-ⁿdu ⁿdu	'the lip'	***tɔn- + -ru**
ton-u ⁿgu	'the labia'	***tɔn- + -u**

The difference between the word for the lips around the mouth and the labia (lips) around the vagina is only made by the difference in class suffix.

The taboo cannot be related to a general taboo on sexual terms. The male genital part **ᵐbasu** 'the scrotum' does not remain in the NGU class, but changes its concord to that of the 'O class. Other class concords referring to other genitals including female genitals are not subject to taboo. These are for example the concord marker of the NDE class containing

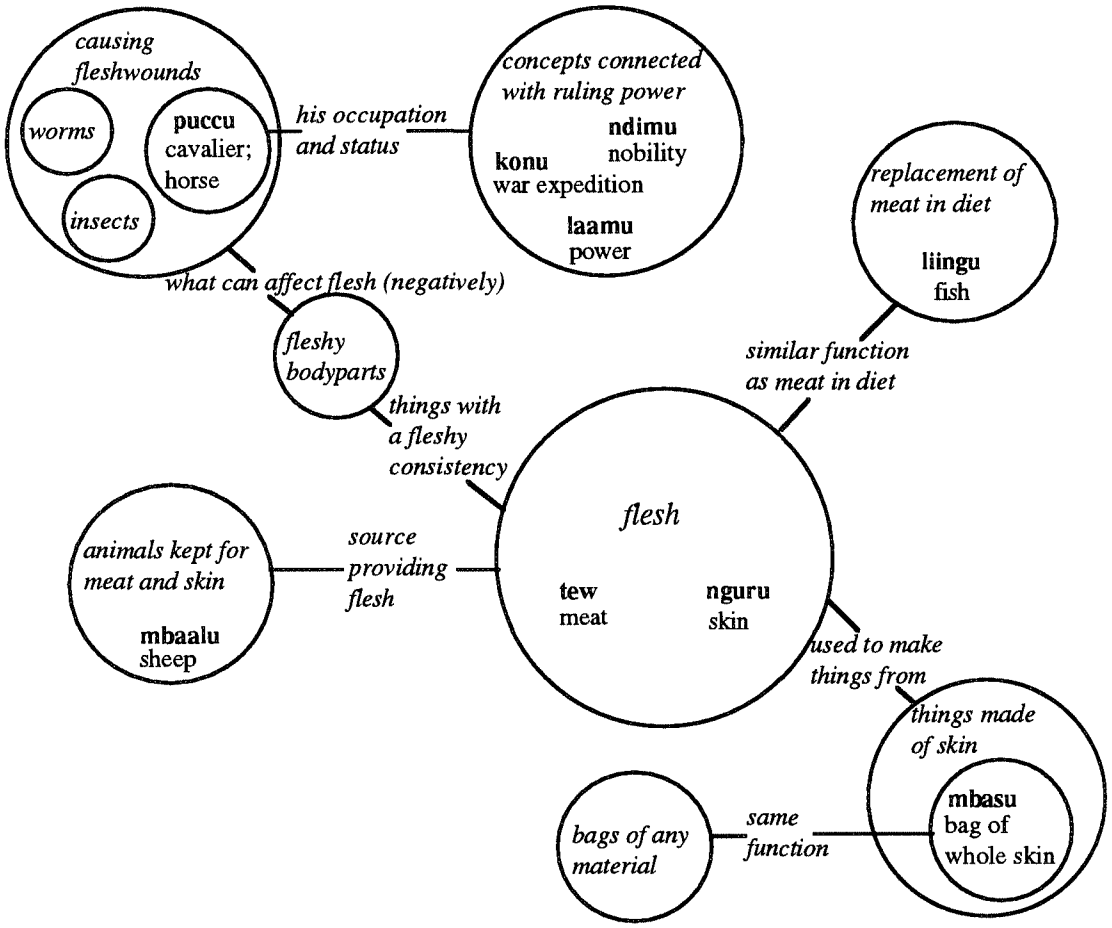
the words **hallɛrɛ** 'penis' and **hɔttɛrɛ** 'clitoris' and the concord marker of the KO class containing the word **ⁿguppɔ kɔ** 'the foreskin'.

Perhaps it is not a coincidence that the only words that remain in the NGU class are words related to the genitals involved in clitoridectomy. Mali is one of the areas were the severest form of clitoridectomy is practised. Many young girls and babies die because of complications caused by infections or simply because the wound won't stop bleeding. Other possible casualties can result from the complications of a difficult child birth when the vagina is sown together (Werner 1987:278). Death can be a reason for taboo, like the taboos on lethal animals in Fulfulde (Ba 1977:275). But death is more an unfortunate possible consequence of the clitoridectomy, rather than an inseparable semantic feature of it.

One of the questions is: what is the link between the taboo on the concord denoting female genital organs and clitoridectomy. Is there a general taboo on female genitals causing both the clitoridectomy and the status of the NGU class concord to be a taboo word? Or are new ideas about clitoridectomy causing the taboo on the NGU class concord which resulted in a reshuffle of the content of the NGU class? An indication of the fact that female circumcision is also a taboo subject is the fact that circumcision of boys at the age of six or seven is celebrated, whereas circumcision of girls at the age of two or three is done secretly without any form of celebration. But the taboo can also be more general, prescribing that anything which has to do with the female genitals has to be hidden. This is indicated for example by the fact that little boys can walk about naked, but little girls will always wear a pair of shorts or a wrapper.

Comparative data from the Fulfulde dialect of the Ringimaaji (Mbororo) in the North West Province of Cameroon support the hypothesis that there is a direct link between the practice of clitoridectomy and the taboo on the NGU class concord in Maasina. In Ringimaaji, there is no taboo on the concord of the NGU class and the circumcision of girls does not occur in this area. More investigation is needed to show the exact relation between the circumcision of girls and the taboo on the NGU class in Maasina. An investigation into the motivations for circumcision could perhaps also start a discussion on this subject to prevent more unnecessary suffering endured by girls and their relatives.

The taboo on the concord of the NGU class makes it difficult to recognize a word ending in a suffix of the NGU class. The comparison with other dialects without a taboo on the NGU class concord can give an answer about the original class of a word ending in **-u** with its concord in the 'O class. The taboo concord of the NGU class is replaced by the concord of the 'O class, but the class suffix is not. This indicates a difference of status between the class concord and the class suffix. The current exclusive association of the NGU class markers with the female genitals seems to be an innovation. The change of concord of words in the NGU class is also mentioned for Fuuta Tooro (Lex 1986:204). The words with a suffix of the NGU class cover a much wider range of semantic fields which are represented in the following network. This network is a reconstruction of the categories in the NGU class before the taboo on its concord diminished the content of this class, based on words like those listed below with a suffix of the NGU class.



flesh		*made from skin*		*bags*	
teew	meat	**ᵐbaggu**	drum	**caaku**	bag
ⁿguru	skin	**ᵐbasu**	bag of skin		
				worms	
fleshy body parts		*insects*		**ⁿgiᵐgu**	worm
ᵐbasu	scrotum	**ɓoŋⁿgu**	mosquito		
ⁿguugu	clitoris	**ɲuuɲu**	ant	*replacing meat in diet*	
		ᵐbuubu	fly	**liiⁿgu**	fish
ruling power				**fiɲaaru**	captain fish
laamu	ruling power	*horses*			
konu	war expedition	**ⁿdimu**	thoroughbred	*animals kept for flesh*	
ⁿdimu	nobility, elite	**tefeewu**	mare	**ᵐbaalu**	sheep
pulaaku	Fulbe society	**molu**	foal	**ᵐbeʔu**	goat
politikaaku	politics	**puccu**	horse, cavalier		

The NGU class groups all the names for insects, the skin and parts of the skin (this was probably the association responsible for the placement of the female genital organs in this class), and objects made from skin like drums and sacs. Worms and insects could be placed in the NGU class because they can cause wounds in the skin. Worms and insects are also associated with meat because they can be found in meat, causing decay of the meat. The word **puccu** 'horse' denotes the animal, but also a warrior on horseback. The word **konu**

has the meaning 'war' in the dialect of Ringimaaji and it uses a concord of the NGU class. The word **konu** is translated as 'war expedition' in Fuuta Tooro. Perhaps the words **puccu** 'horse, warrior on horseback' and **konu** 'war' are in this class because of a semantic field of warfare associated with flesh-wounds. The word **ⁿdimu** denotes both a 'thoroughbred mare' and 'nobility'. The word **ⁿdimu** may be in this class because of the comparison of a thoroughbred horse with a someone bred as a noble person. Another possible explanation is the fact that nobility was achieved through warfare. Possibly the word **laamu** 'ruling power' is also in the NGU class because ruling power is achieved by warfare. Abstract nouns describing leadership and group formation formed with the suffix **-aaku** such as **politikaaku** 'politics, the politicians' are also in the NGU class. These words are possibly linked with words like **laamu** 'ruling power' and **ⁿdimu** 'nobility'.

There is a strong association between the NGU class and horses which is shown by looking at the paradigms of the stems **rim-** 'noble', **tɛfɛ-** 'female animal', and **mɔl-** 'foal'.

puccu	'horse'		
ᵐbaaraagu	'stallion'		
guʔu	'stallion'		
ⁿdimu	'thoroughbred mare'	**dim-ɔ**	'nobleman'
tefeewu	'mare'	**tɛfɛɛ-wa**	'she-ass'
molu	'foal, filly'	**mɔl-a**	'donkey's foal'

The class suffix indicates that the stem is describing a horse, just like the 'O class suffix indicates that a person is described in the word **dimɔ** 'nobleman', and just like the association with donkey appears when a BA class suffix occurs in the word **tɛfɛɛwa** 'she-ass'. The association of the NGU class with horse is present for the speakers that use the concord **ⁿgu** with horses. This association seems strong and innocent enough to overrule the taboo association of the NGU class concord with female genitals. A strong semantic link between the NGU class and horses might explain the fact that a consultant (from Gimballa) allowed the use of the concord of the NGU class also for the word **puccu** 'horse' and other horse names. A consultant from Duwansa in the Haayre used a concord **ku** to refer to the word **puccu** 'horse'. It looks as if a KU class is innovated to cope with the taboo on the **ⁿgu** concord. So far the concord **ku** is only found to refer to the word **puccu** 'horse'. Further research is necessary to find out whether more words can be found in a possible new KU class. Examples of the use of a concord **ku** are also listed in the data collected in Maasina in the villages of Atara and Gaaci Luumo and in Gimmballa in the villages of Yuwaru, Nyafunke, and Hoore Aaya (MAPE 1983a).

The following suffix forms of the NGU class are found on words which formerly belonged to that class. These words are still formed with a suffix of the NGU class but they use the concord of the 'O class.

grade A:	**-u**	objective word derivation
grade B:	**-wu**	associative word derivation
grade C:	**-gu**	circumstantial word derivation
grade D:	**-ⁿgu**	subjective word derivation

The initial consonant of words with a suffix from the NGU class is prenasalized. This initial consonant can also be an indication that the suffix is from the NGU class.

7.2.7.1 THE GRADE A SUFFIX FORM **-u**

Most words with a class suffix of the NGU class combine with the suffix form **-u** denoting objects formerly associated with the NGU class or cognate objects and cognate states when derived from verb stems.

ᵐbaal-u / baali	'sheep'
ᵐbagg-u / baggi	'drum'
ᵐbeɗ-u / beɗi	'lid (round, made from woven grass)'
ᵐbeel-u / beeli	'shadow, reflection'
ᵐboort-u / boorti	'lamb'
ᵐbuuɗ-u / buuɗi	'coin (5 CFA)'
ⁿgabb-u / gabbi	'hippo'
ⁿgur-u / guri	'skin, leather'
ⁿduuɓ-u / duuɓi	'year'
tew, teew, teew-u	'meat'
ᵐbuub-u / buubi	'fly'
ɲuuɲ-u / ɲuuɲi	'ant'
ɲaak-u / ɲaaki	'bee'
ᵐbas-u / basi	'bag of goat skin; scrotum'

Abstract nouns which are formed with a suffix **-aaku** use the concord of the 'O class in Maasina.

Maasina:

nɛɗɗ-aaku	'humaneness; humanity'	**nɛɗɗ-ɔ**	'person'
banⁿdiraaku	'kinship'	**banⁿdiraaɗɔ**	'relative'
denɗiraaku	'cross-cousin-ship '	**denɗiraaɗɔ**	'cross-cousin'
ⁿdunⁿdaraaku	'audacity'	**dunⁿdarɔ**	'bold person'
pamaraaku	'smallness (humans)'	**pamarɔ**	'small (person)'
kɔɗaaku	'being a guest'	**kɔɗɔ**	'guest'
kaanaŋkaaku	'leadership'	**kaanaŋkɛ**	'leader'
ⁿdimaaku	'nobility'	**ⁿdimu**	'thoroughbred'
cukaaku	'youth '	**suka**	'youth'
maŋⁿgaaku	'age, old age'	**mawɗɔ**	'old person'
ʔalsilamaaku	'Islam'	**ʔalsilaamɛ**	'Muslim'
beetaaku	'(in the) morning'	**bɛɛtɛ**	'morning'
pulaaku	'Fulbe community'	**fulɓɛ**	'Fulbe'

Words formed with the same suffix **-aaku** are referred to with a concord of the NGU class in other Fulfulde dialects (Zoubko 1980).

other dialects:

pulaaku ⁿgu	'characteristic qualities of the Fulbe'
koɗaaku ⁿgu	'hospitality; situation as guest or stranger'
neɗɗaaku ⁿgu	'humanity, humaneness; self respect'
cukaaku ⁿgu	'youth' (period and people)
mangaaku ⁿgu	'pride'
liimaanaaku ⁿgu	'belief, faith, honour'

A few words combine with a morpheme **-aagu** in Maasina. This suffix is similar in form and it seems to have the same meaning as the morpheme **-aaku**. Both suffixes are used to form abstract nouns.

Maasina:

ʔesiraagu	'relation between in-laws'	**ʔesiraa-ɗɔ**	'in-law'
gijiraagu	'friendship'	**gijiraa-ɗɔ**	'friend'

Words ending in **-aagu** are referred to with a concord of the NGU class in other dialects. Words that end in **-aaku** in Maasina sometimes end in **-aagu** in other Fulfulde dialects (Azarya 1993, Zoubko 1980).

other dialects:

pulaagu ⁿgu	'characteristic qualities of the Fulbe'
bandiraagu ⁿgu	'kinship'
denɗiraagu ⁿgu	'relations between cousins'
ⁿdimaagu ⁿgu	'liberty; nobility; stallion'
dimaagu ⁿgu	'liberty; nobility; stallion'

Zoubko (1980) even lists some words where the form of the suffix is **-aaⁿgu**.

other dialects:

pulaaⁿgu ⁿgu	'characteristic qualities of the Fulbe'
koɗaaⁿgu ⁿgu	'hospitality; situation as guest or stranger'

There is a suffix **-aaχu** in the Soninke language (Tioulenta, personal communication). The dialect of Maasina has also borrowed the suffix **-ŋkɛ** 'person from' from the Soninke language. The former suffix is borrowed as **-aaku**, **-aagu**, or **-aaⁿgu** where the consonant [χ] has undergone different phonological changes. The final vowel of the suffix **-aaku** has been interpreted as the suffix of the NGU class in dialects which use the concord **-ⁿgu**. The last syllable **-χu** in Soninke has been interpreted as the suffix of the NGU class in the dialects which show the suffix forms **-aagu** and **-aaⁿgu**.

The suffix **-aaku/-aagu/-aaⁿgu** expresses the meaning "coherent total of" combining both interpretations of "entirety of" and "characteristics of". The exact meaning is further determined by the content of the stem. The words derived from the stem of a singular word form and the suffix **-aaku** express mainly the total set of characteristics of such an individual.

dɛbb-aaku	'femininity'	**dɛbb-ɔ**	'woman'
ⁿgɔrk-aaku	'masculinity'	**gɔrk-ɔ**	'man'

The meaning of the derivation is interpreted as all those individuals, the total of such persons, when the word is derived from the stem in a plural word form and the suffix **-aaku**.

ⁿdɛw-aaku	'the female gender' (all women)	**rɛw-ɓɛ**	'women'
ⁿgɔr-aaku	'the male gender' (all men)	**wɔr-ɓɛ**	'men'

The difference lies mainly in the stem from which the words are derived. The nouns expressing totality are based on the form of the stem in the plural: **rɛwɓɛ** 'women' and **wɔrɓɛ** 'men'. The nouns expressing characteristics are based on the form of the stem found in the singular words **dɛbbɔ** 'woman' and **gɔrkɔ** 'man' One older informant gave the following words, their formation is in agreement with the above derivations.

pul-aaku	'Fulbe society, all the Fulbe'	**ful-ɓɛ**	plural form
pull-aaku	'Fulbe characteristics'	**pull-ɔ**	singular form

The existence of the word **pullaaku** was however denied by other consultants of Maasinankoore. The word **pulaaku** is always consequently translated as 'all the Fulbe' or 'Fulbe society' ("societé peule, tous les peuls"), its translation as 'characteristics of the Fulbe' is categorically denied in Maasina.

The hypothesis is that both meanings "characteristics of" and "all, total" are present in the suffix **-aaku** whose basic meaning can therefore be best described as "coherent total of". The two possible interpretations depend on other semantic information which is present in the stem.

7.2.7.2 THE GRADE B SUFFIX FORM **-wu**

The suffix form **-wu** marks the associative word formation. It expresses the fact that the concept linked to the class marker has a semantic feature in common with the word that serves as its noun stem.

ⁿgiroowu / girooji	'pig'	< ***giro-**
tefeewu / tefeeji	'mare'	< ***tɛfɛ-**

The exact etymology of the above words is not clear because neither the origin nor the meaning of the words that serve as the stem are known.

7.2.7.3 THE GRADE C SUFFIX FORM **-gu**

The suffix form **-gu** marks the circumstantial word derivation. Grade C suffixes are often used to indicate "purpose, mode, intention". There are only a few nouns with the allomorph **-gu** as class suffix of the NGU class.

ᵐbaaraagu / baaraaɗi	'white horse'
ⁿdimaagu	'stallion'

The appearance of the form **-aagu** in the words **ⁿdimaagu** 'stallion' and **ᵐbaaraagu** 'white horse' has another explanation than the abstract noun formation involving **-aaku**. The combination of the word **ⁿdimaagu** 'stallion' with a suffix form **-gu** can be explained by the fact that the word is derived from the verb **rimudɛ** 'to give birth'. The stallion is "a horse used for making mares give birth". The "purpose or use" of the stallion is reproduction. The circumstantial marker indicates that a stallion does not give birth itself, but it is a (necessary) circumstance in the reproduction of horses. It is not obvious what the purpose of a **ᵐbaaraagu** 'white horse' is. The verb stem **waarudɛ** 'to look like, to resemble' suggests that its "purpose or use" is to resemble something.

7.2.7.4 THE GRADE D SUFFIX FORM **-ⁿgu**

There are not many nouns that show a suffix form **-ⁿgu** as a remnant of the NGU class suffix.

maŋⁿgu	'greatness'	**mawnudɛ**	'to be(come) great'
ɓeyⁿgu	'offspring'	**ɓeynudɛ**	'to bring forth, to give birth'

The suffix **-ⁿgu** is the subject pronoun in the formation of participles. Again, it is the morphological formation using the suffix form which is identical to the subject concord that points in this direction. Further research is needed to clarify the exact etymological relation between the derived words and the verb stems. No obviously related verb that can serve as stem for the participle can be found for the following few words that combine with the suffix **-ⁿgu**.

ɓoŋⁿgu / ɓowɗi	'mosquito'	**ɓɔwta**	'swell' (Zoubko 1980:94)
liiⁿgu / liɗɗi	'fish'	**liyaadɛ**	'pour hot oil over food (as sauce)'
ⁿgilⁿgu / gilɗi	'worm'	**yila**	'start; disappear'
		yiila	'go round'

Comparison with cognate forms of the word **liiⁿgu** 'fish' in other dialects suggests a complicated derivation.

liiⁿgu / liɗɗi	'fish' [Maasina]
liiⁿgu / liɟɟi	'fish' [Liptaako] (Bidaud and Prost 1982:34)
liɟⁿgu, liɟiⁿgu / liɟɟi	'fish' [Ringimaaji]
liʔⁿgu, liiⁿgu / liɗɗi	'fish' [Jamaare] (Noye 1989:224)

Possibly the word for fish is derived from a stem ***liɟ-** or ***liy-** 'to provide oily sauce'. Such a verb stem could explain the objective derivation of the word **liʔɔ kɔ** ' the oily sauce' [Jamaare]. This stem appears also in the verb **liyaadɛ** 'pour hot liquid oil over food' [Maasina], where the [ɟ] has become [y]. Fish oil is a product that is very familiar and must have a long history of use in Maasina. The following tentative hypothesis describes the

historical derivation. The consonant [ɟ] has been subject to change in many dialects. It is often replaced by a glottal stop [ʔ]. The glottal stop is often lost when it occurs between two identical vowels.

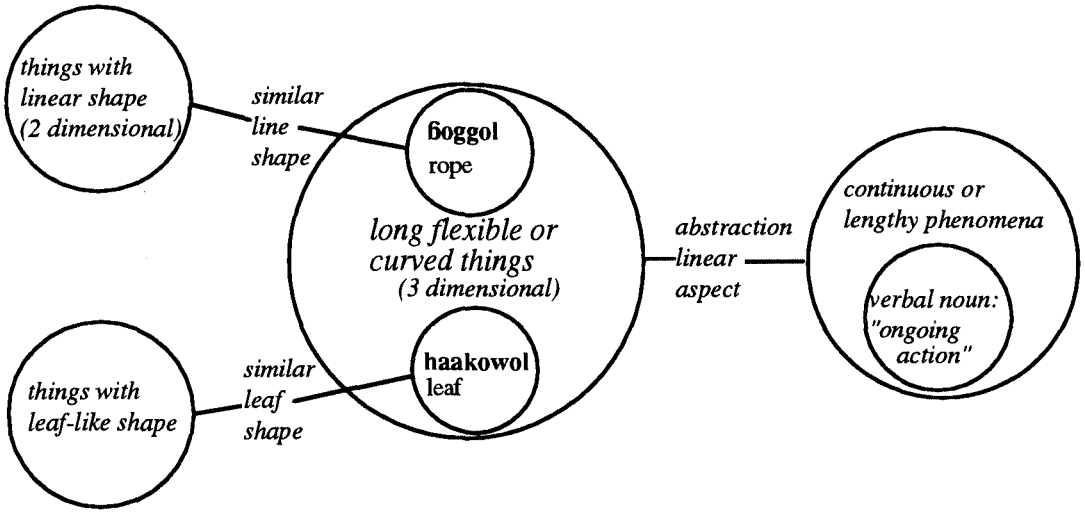
objective derivation	***lij + *hɔ**	**> *lijɔ > liʔɔ**	'oily sauce' (fish oil?)
subjective derivation	***lij + ⁿgu**	**> lijⁿgu > lijiⁿgu > liʔiⁿgu > liiⁿgu**	'fish'
		> liʔⁿgu > liiⁿgu	
	***lij + ɗi**	**> lijji**	'fishes'
		> liɗɗi	

The different suffix forms are all rather exceptional. The occurrence of a prenasalized suffix **-ⁿgu** in the singular suggests that this word is derived from a participle. Therefore the hypothesis is that this stem combines (underlyingly or historically) also in the plural with the suffix form of the 'DI class in participles **-ɗi**, and not the vowel initial suffix **-i**.

The taboo on the use of the concord **ⁿgu** also explains why there are no forms of this class in the agentive noun formation and why there are so few participle forms in the NGU class. This is because these productive noun formations would all be based on the use of the class suffix **ⁿgu** as concord marker which is taboo.

7.2.8 THE NGOL CLASS

The following semantic network is proposed for the NGOL class.



long flexible objects		*line shape*		*continuous/lengthy concepts*	
ɓoggol	rope	**gasol**	furrow	**binⁿdol**	writing
haakowol	leaf	**laawol**	road	**leɲol**	lineage
leeᵐbol	hair, feather	**ɗatol**	path	**jaaɲelol**	clan
binⁿdirgol	writing feather	**keerol**	boundary	**kulol**	fear
laɲol	climbing plant			**bomol**	dance
		ongoing action ("V-ing")			
leaf shape		**winⁿdugol**	'writing'		
ɗerewol	piece of paper	**ɓoosugol**	'massaging'		
kufol	grass stalk shell, scale	**durgol**	'pasturing cattle; cattle-breeding'		

Many words in the NGOL class can be semantically linked to the word **ɓoggol** 'rope'. They denote long thin flexible objects which are not straight (opposing words related to **lɛggal** 'stick' of the NGAL class which are stiff and straight). The long, thin, and flexible meaning or aspects of it apply also to words connected with the meaning of **haakowol** 'leaf' like **ɗerewol** 'piece of paper' and **kufol** 'shell of groundnut, scales of fish'. The only animal appearing in the NGOL class is the snake, because it is referred to with the euphemistic expression **ɓoggol leydi** 'snake' which literally means "rope of the earth".

Like rope, roads and paths also have a long and curved shape and thus not surprisingly the words denoting roads and paths belong to the NGOL class. The nouns in the NGOL class denoting landscape features could have entered the NGOL class on the analogy of words like **ɗatol** 'path'. Most of these landscape features also can be described as long (like **gasol** 'furrow'). A word like **kaakol** 'kitchenware' is perhaps in the NGOL class because the calabash which is used to make kitchenware grows on a **laɲol** '(climbing or) creeping plant'.

A linear connotation is found in a number of nouns, e.g. **koŋⁿgol** 'phrase' and **binⁿdol** 'writing'. The abstraction of a linear connotation is present in the words **jaaɲelol** 'lineage' and **leɲol** 'clan', i.e. relating to the line of descent. The abstraction of lengthiness and continuity of a line motivates the presence of words like **kulol** 'fear' in the NGOL class.
The vowel [o] in all suffixes of the NGOL class has the feature [+ATR]. It triggers ATR harmony of vowels in the stem that precede the [+ATR] vowel [o] (see section 2.9.3). The initial consonant of stems that combine with a suffix of the NGOL class is taken from the plosive series, as is the case with all suffixes that end in [l]. The suffix forms occurring in the NGOL class are given in the following table.

grade A:	**-ol**	objective word derivation
grade B:	**-wol**	associative word derivation
grade C:	**-gol**	circumstantial word derivation: "action of" verbal noun marker denoting instrument by its purpose
grade D:	**-ⁿgol**	subjective word derivation

The distribution of the different suffix forms in the NGOL class is discussed in the sections below.

7.2.8.1 THE GRADE A SUFFIX FORM **-ol**

The suffix form **-ol** marks words formed using the objective word derivation. Many of them contain simple nominal stems. The following examples are ordered semantically following the categorization of the semantic content of the NGOL class given above.

rope: long, thin, flexible

ɓogg-ol / ɓoggi	'rope'
bal-ol / bali	'stroke of leaf of palm (to weave mats)'
kuɗ-ol / kuɗi	'blade of grass, grass-stalk'
leeᵐb-ol / leeɓi	'hair, feather'
kaam-ol / kaami	'girth, belly band'
koɗ-ol / koɗi	'chain'

lef-ol / leppi	'woven strip'
ladd-ol / laddi	'snake'
kom^{m}b-ol / kom^{m}bi	'hem, edge of cloth'
cuuf-ol / cuufi	'seam'
kuut-ol / kuuti	'penis' (insult)
taltal-ol / taltalɗi	'rein, bridle rein'

line shape: road

laaw-ol / laabi	'road'
burt-ol / burti	'migration route'
ɗat-ol / ɗati	'road, path in the bush'
ɟeeŋ-ol	'seasonal trekking'
keer-ol / keeri	'boundary'
ɲeɲ-ol / ɲeɲi	'decoration on calabash'
doŋ-ol / doŋi	'temporary elevation during flooding'
gaaf-ol / gaafi	'area measure (about half a hectare)'
gebb-ol / gebbi	'slope in the landscape'

linear sense

koŋ^{n}g-ol / koŋ^{n}gi	'word, phrase'
beɗ-ol / beɗi	'magic secret to make someone or sth. emigrate'
leɲ-ol / leɲi	'clan'
kooɟ-ol / kooɟi	'saliva accumulated during sleep'

The deverbal nouns which combine with the suffix form **-ol** denote unmarked or cognate objects from the verb stem from which they are derived.

diid-ol / diidi	'line, stripe'	**diidudɛ**	'to draw a line'
bom-ol / bomi	'dance'	**womudɛ**	'to dance'
jim-ol / jimi	'song'	**yimudɛ**	'to sing'
taalol / taali	'story, fable'	**taaludɛ**	'to tell (a story)'
bin^{n}dol / bin^{n}di	'writing'	**win^{n}dudɛ**	'to write'
daɗol / daɗi	'rope to tie calves to'	**raɗudɛ**	'to tie at the neck'
dawol / dawi	'journey'	**dawudɛ**	'to travel'
duhol, duwol / duhi	'belt of trousers'	**duutaadɛ**	'to loosen a belt'
gasol / gasi	'furrow, gully, trench'	**ʔasudɛ**	'to dig'
kumol / kumi	'cord worn over garment'	**humaadɛ**	'to put on, fasten'
lan^{n}dol / lan^{n}di	'question'	**lan^{n}daadɛ**	'to ask'
ceelol / ceeli	'leather string'	**seeludɛ**	'to cut up in pieces'
moorol / moolli, mooli	'braid, plait'	**mɔɔrdɛ**	'to plait'
jaaɲelol / jaaɲeli, jaaɲuli	'family, clan, lineage'	**jaaɲudɛ**	'to return the herd to the domicile'

The noun formed by an inchoative verb stem with the suffix form **-ol** expresses the unmarked or cognate state resulting from the change of state expressed by the verb. The following words are examples of cognate states in the NGOL class.

ɓuuɓol	'coldness, dampness'	**ɓuuɓudɛ**	'to be(come) cold'
kulol	'fear'	**huldɛ**	'to fear'
pii^{n}d-ol	'flowering season'	**fii^{n}dudɛ**	'to flower'
jaa^{n}gol / jaali, jaa^{n}gooli	'cold'	**jaa^{n}gudɛ**	'to be cold (of weather)'

Here as elsewhere in this study, "objective" is understood in a broad sense. It means that the derived word describes the object of the verb. It can be its patient, but also the state or result of the related verb. Thus, **jim-ol** 'song' is what is being sung, the cognate object of **yim-udɛ** 'to sing'. The word **taal-ol** 'story' denotes what is being told, the object of **taal-aadɛ** 'to tell'. The suffix **-ol** forms nouns which express a state or result when it is derived from stative verbs. The word **kulol** 'fear' denotes the resulting state of the verb **hul-dɛ** 'to fear', **ɓuuɓ-ol** 'cold' is the resulting state of the inchoative verb **ɓuuɓ-udɛ** 'to be cold.

7.2.8.2 THE GRADE B SUFFIX FORM **-wol**

The suffix form **-wol** occurs after a few stems which end in a vowel. The semantic content is similar to that of the list of nouns connected with long and linear things given above. All stems which form nouns using the associative word derivation are suspected to have as their stem either a loan-word or a full noun with a class suffix.

haakowol / haakooji	'leaf'	**haakɔ**	'foliage'
ʔujunerewol / ʔujunereeji	'bank note, 5000 CFA'	**ʔujunɛrɛ**	'1000'
ɓuurewol	'ball of butter'	**beurre**	'butter' [Fr.]
kokowol / kookooji	'wall'	**kógó**	'wall' [Bmb.]
korewol	'dependent, subordinate'	**kore**	'relative' [Son.]

The origin of the following vowel final stems is not known.

ɗerewol / ɗereeji	'piece of paper'
gaarawol / gaaraaji	'thread'
baakowol	'leather band with amulet'
^{m}boŋewol	'leather belt with little iron bells'
culuŋkoowol / culuŋkooji	'little bell'

The meaning of this morpheme should account for the use of the suffix **-wol** on stems which are in itself full words. These full words can also be loan-words. A combination of such a stem with the associative derivation suffix results in the following etymology: "thing of NGOL class with an association or a semantic feature shared with the concept which is expressed in the stem". When we take the semantic characteristic of the NGOL class we can rephrase the nouns which take the suffix **-wol** as "long thin flexible object that is like X", whereby X should be filled in with the meaning of the word which forms the stem of this noun. Thus, **haakowol** 'leaf' is a long thin flexible thing which is like **haakɔ** 'foliage'.

The two words with a stem containing the form **-amaa-** are formed with the morpheme **-amaa-** 'serving for' (cf. section 7.2.5.2) which generally is followed by the continuant

initial suffix form. It is possibly related to the passive form of the indefinite. The verb forms with the morpheme **-amaa-** must be taken as full words from which the following nouns have been derived.

bakamaawol	'shoulder strap'
faramaawol	'pretty belt, to decorate a horse's head'

The word **bakamaawol** 'shoulder strap' is related to the verb stem **wakk-** 'put a load on the shoulder' (Zoubko 1980:499). The **bakamaawol** is literally "a rope that serves to put a load on one's shoulders".

The literal meaning of **faramaawol** 'pretty belt to decorate a horse's head' could be "rope which serves to neigh" if it is derived from the verb stem **fardɛ** 'neigh, making of a gay sound by a horse after drinking'. Perhaps attaching the decorated belt on the head of a horse causes neighing of the horse, which is supposed to express its joy over the nice decoration. The word **faramaawol** seems also to be connected with the word **faram** 'head-dress which allows a horse to drink'. The word **faram** is possibly an abbreviation of the long form, because shortening of long words to disyllabic words can be observed elsewhere in the language (cf. **jɔm-wurɔ** > **jɔwrɔ** 'who organizes access rights to pastures and water, lit: owner of Fulbe village), and because the form **faram** is otherwise hard to explain. A suffix of the class denoting mostly liquids **-am** attached to the stem of the verb **far-** 'neigh' is not a likely etymology for this word.

7.2.8.3 THE GRADE C SUFFIX FORMS **-gol** AND **-ⁿgol**

In the corpus there is one instrumental noun formed with the suffix **-gol** which could be used to demonstrate the meaning of "purpose" expressed by the circumstantial grade marker.

binⁿdir-gol	'feather to write with' as opposed to:
binⁿdir-gal	'stick to write with' = 'pen'

The word **binⁿdirgol** 'writing feather' takes the plosive initial suffix **-gol** on the analogy of the word **binⁿdirgal** (Zoubko 1980:71) 'writing reed'. The word **binⁿdirgol** 'writing feather' is associated with the NGOL class, because a feather is long and flexible. The word **binⁿdirgal** 'writing reed' is associated with the NGAL class, because a reed is long and straight like a stick. The **-ir-** extension always combines with the suffix of the circumstantial derivation. The suffix **-gol** in the word **binⁿdirgol** 'writing feather' is the form chosen on the analogy of other instrumental noun formations.

The suffix form **-gol** can also combine with a verb stem to form a verbal noun with the meaning "action of". This results in a meaning "state of" in combination with verbs expressing a state. This distinctive meaning of the suffix form **-gol** is formed on the analogy of the formation of the infinitive noun **-dɛ** and is equally productive. Where the infinitive marker **-dɛ** denotes "the possible and intended occurrence of the action expressed by the verb at an indefinite moment in time". The "action noun" or "gerund verbal noun" formed with the gerund marker **-gol** denotes practically the same concept, but over a longer period

of time. The meaning of the length of the moment is a consequence from the combination with the meaning of NGOL class. Thus, the "action noun" or gerund is paraphrased as "the possible and intended occurrence of the action expressed by the verb over an indefinite long period of time".

win^{n}dugol	'act of writing'
ɓoosugol	'action of massaging'
durgol	'action of pasturing cattle; cattle-breeding'
laaɓugol	'state of being clean'
leefugol	'wetness'
moddugol	'thickness'
mooɓugol	'gathering'
moorgol, moorugol	'plaiting'
ɲolgol, ɲolugol	'rotting'
sawrugol	'treatment'
selbugol	'being liquid'
wartugol	'return, action of returning'
yaagol	'going'
yarragol	'permission'
ʔeggugol	'moving, removal'
tekkugol	'solidity'
ʔaawgol	'sowing, setting'

These verbal nouns do not show initial consonant alternation. They always keep the basic consonant as the initial consonant. Alternation with a plosive initial consonant is a rule for all other regular nouns of the NGOL class. These verbal nouns are an exception to this rule.

The suffix form of the circumstantial word derivation has an allomorph -^{n}**gol** which occurs due to automatic prenasalization of voiced consonants after a stem which ends in a nasal consonant (cf. section 2.3.3).

tin^{n}diŋ^{n}gol	'advice, advizing'
laam^{n}gol	'cleanliness'

The form **laam^{n}gol** is derived from **laaɓugol** when it was shortened to a disyllabic word. The stem final consonant [**ɓ**] cannot occur in syllable final position, therefore the stem final consonant has alternated with the nasal consonant [**m**] which conditions the prenasalized suffix form -^{n}**gol** of the verbal noun marker "action of".

The verbal nouns above do not have a plural from. They are words expressing an action of state that cannot be pluralized. The following noun formed with the -**gol** suffix does have a plural.

giggol / gilli	'friendship'

The word **giggol** could be derived from a verbal noun based on the verb stem **yiɓ-** 'love, like, want'. This derivation could not have been a recent derivation, because the initial

alternation of the verb is **y-j-ⁿj** synchronically. The word differs from the verbal nouns in that it actually changes its initial consonant of the stem. The exact etymology of this word is not clear.

7.2.8.4 THE GRADE D SUFFIX FORM -ⁿ**gol**

On analogy with the hypothesis for all prenasalized initial class suffixes, the hypothesis is that the suffix form -ⁿ**gol** is the subject concord which is derived from a referential pronoun marker ***n** and the concord ***ɣol**. The nouns whose stems combine with such a prenasalized suffix are participles. Participles are formed by a subjective word derivation which is characterized by the use of the subject concord as suffix. To support this hypothesis, the semantic composition of these stems and prenasalized suffixes should result in the denotation of a possible subject of the verb stems that occur in these participles. The number of nouns which are derived from participles in the NGOL class is not high.

"that which is cut away, harvested ":	**kettuⁿgol**	'layer of cream on the milk'
(from fresh milk)	**hettudɛ**	'to cut off, to harvest'
"(time stretch) that is sleepy"	**ɗoyⁿgol / ɗoyli**	'sleep, sleepiness'
	ɗoy-ɗ-udɛ	'to be sleepy'
"that which starts happily"	**jaaⁿgudɛ**	'to be cold'
	jaaⁿgol / jaali, jaaⁿgooli	'cold weather, cold period' (after rainy season, with initial harvest time)
	yaal-	'start happily, good'
"(rope) which attaches calves":	**daaⁿgol / daaɗi**	'calf-rope'
	raɗudɛ	'to attach calves at the neck'

Only the plural form **jaali** indicates that the stem final consonant was probably [l]. The verb **jaaⁿgudɛ** 'to be cold' indicates that synchronically the prenasalized voiced velar consonant [ⁿg] can be analyzed as the stem final consonant. The formation of the word **jaaⁿgol** 'cold' is possibly based on a verb stem **yaal-** that has several meanings: 'alleviate hunger without being satisfied; start happily, good; be on the right track; meet, visit frequently' (Zoubko 1980:528). The meaning "start happily, good" is chosen here to explain the prenasalized suffix as the subject pronoun in **jaaⁿgol** 'cold'. The cold period actually does start with a harvest season, when life should be easy. The cold period does coincide with the change from the western old to the new year. The word **jaaⁿgol** refers to the beginning of the year which is the cold period. The seasons in Fulfulde also follow the solar year, not the Islamic lunar year. A particular star appears five nights in a row at the beginning of the cold period. If it is very cold during the appearance of these stars, one can predict that the next harvest and thus also the coming year will be very good. It is possible that the word **jaaⁿgol** comes from the good (cold) start of the year which is thought to predict a prosperous year.

There remain a few words which combine with the prenasalized suffix -ⁿ**gol** that appear to be participles by their morphological formation. However, the verb stems which should support the hypothesis that these words are participles are not attested. The difference in vowel length between **daaⁿgol** 'calf-rope' and the verb **raɗudɛ** also poses a problem for the

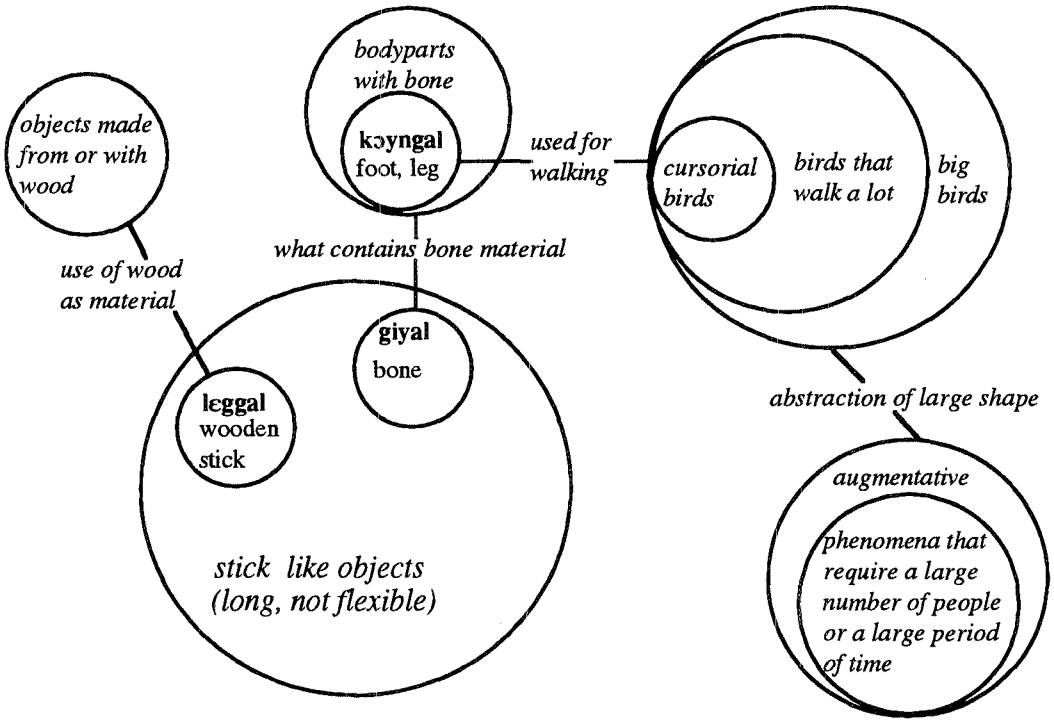
derivation of these two words. The supposition is that the related verbs have been lost, or semantic shift has obscured the relation between the verb stems and the derived participles.

caa^{n}gol / caali, caandi	'stream'
cuur^{n}gol fatumata binta	'rainbow' (lit: ribbon of the daughter of Mohammed)

The general tendency that nouns with a prenasalized class suffix describe nouns denoting the subject of the related verb stem is also supported by the nouns ending in the prenasalized suffix form of the NGOL class.

7.2.9 THE NGAL CLASS

The following network of associations is proposed to represent the semantic grouping and the links that motivate tthe membership of words in the NGAL class.



stick shape		*body parts with bone*		*birds that walk a lot:*	
mɛsalal	needle	**caggal**	back	**cɔfal**	chicken
kuulal	yard	**luuwal**	horn	**caygal**	goose
niiral	reed	**ʔardutal**	foreleg	*augmentative*	
giyal	bone	*walking:*		**paalal**	large gourd
made of wood:		**cuudal**	trot	**ɲii^{n}gal**	big tooth
lahal	wooden bowl	**bam^{m}baliɟɛwal**	gallop	*requires a long period of time*	
ʔalluwal	wooden slate	*cursorial birds:*		**ʔan^{n}dal**	knowledge
baafal	door leaf	**gɛrral**	wild partridge	**muŋal**	patience
houses built with wood:		**gɛrtɔgal**	white fowl	*requires many people*	
bɛɛ^{m}bal	silo	**^{n}dawwal**	ostrich	**kawrital**	meeting
dudʃal	Koran school	*big birds*		**dɛwgal**	wedding
galbal	walled corral	**dʃutal**	vulture		

The NGAL class has a large number of members. They can be divided into several semantic groups. A large part of the class consists of words which are semantically grouped around the key term **lɛggal** 'wooden stick'. Words can be grouped with stick for various reasons: because they have the shape of a stick (**luuwal** 'horn', **mɛsalal** 'needle', **kuulal** 'yard', **giyal** 'bone'), because they are also made of wood (**lahal** 'wooden bowl', **ʔalluwal** 'wooden slate'), and because their construction is based on wooden sticks (**baafal** 'door', **garuwal** 'mud house', **bɛɛᵐbal** 'silo'). The body parts that belong to this class are linked to the word bone, because they contain bone (**balawal** 'shoulder', **caggal** 'back', **tɛrgal** 'limb', **kɔyⁿgal** 'foot and lower leg'). Words denoting different manners of walking are in the NGAL class because of their association with **kɔyⁿgal** 'foot'. Cursorial birds are also classified in the NGAL class because of the word **kɔyⁿgal** 'foot'. The group of cursorial birds is extended to "birds that walk a lot". These birds are generally bigger than the small flying birds which are classified in the NDU class. The augmentative connotation of the big birds in the NGAL class may have led to the inflectional use of the NGAL class suffix as the marker of augmentative nouns. Words denoting periods (harvest, marriage, flowering season) fall in the NGAL class, possibly because they stretch over a larger period of time. The abstract nouns in the NGAL class can be associated with the augmentative meaning of the NGAL class. For example, words denoting human activities are in the NGAL class because they involve a larger number of people (wedding, meeting, tradition, feast of entering the Inner Delta) or because they are formed over a larger period of time (knowledge, decision, patience, existence).

There remain a few words which are difficult to group semantically with the subclasses outlined above (**cɔbbal** 'dust', **natal** 'picture'). For some words an internal semantic categorization is possible (the membership of **mettaŋⁿgal** 'flame' could be motivated on the grounds that is has a shape comparable to that of **ɗɛŋⁿgal** 'tongue').

The augmentative nouns are related to a normal size version of the noun, i.e. the same noun stem also occurs in another class.

cuur-al / cuurɛɛlɛ	'big house, big room'	**suudu**	'house'
jɛɛs-al / jɛɛsɛ	'face, big and ugly'	**yɛɛsɔ**	'face'
beel-al / bɛɛlɛ	'large pool, pond'	**weeⁿdu**	'pond'
paal-al / paalɛ	'large gourd'	**faaⁿdu**	'gourd'

The augmentative indicates that the size of the entity is bigger than is expected normally. The augmentative has also a negative connotation. The word **nɛɗɗal** 'large person' has connotations such as a rough, rude, and ugly person. Although the augmentative formation is productive, the augmentative form of many nouns is rejected by consultants because of semantic incongruity.

The suffix forms which occur in the NGAL class given below are further discussed and exemplified in the following sections.

grade A:	**-al**	objective word derivation
grade B:	**-wal**	associative word derivation
grade C:	**-gal**	circumstantial word derivation: denotes objects of use
grade D:	**-ⁿgal**	subjective word derivation

The initial consonant of words in the NGAL class is taken from the plosive series. This initial consonant is the regular form of the initial consonant of stems which combine with a class suffix ending in [l].

7.2.9.1 THE GRADE A SUFFIX FORM **-al**

The suffix form **-al** marks the most neutral word derivation: the objective word derivation. This suffix is attached to simple nominal stems. The following examples are assumed to contain nominal stems, no related verb is known.

saah-al (also **saahel**)	'north; the desert' < Ar.
cɔbb-al / cɔbbɛ	'ball'
cɔll-al	'dust'
cuud-al	'trot'
mɛsal-al / mɛsɛllɛ	'needle'
kuul-al / kuulɛ	'yard, ell'
niir-al / niirɛ	'beater, reed'
giy-al / giyɛ	'bone; thorn; fish bone'
lah-al / lɛhɛ	'wooden bowl'
kɛw-al / kɛwɛ	'spindle'
baaf-al / baafɛ	'door, leaf (closing part)'
duɗ-al / duɗɛ	'Koran school'
galb-al / galbɛ	'corral with walls'
cagg-al / caggɛ	'back, backside'
luuw-al / luuwɛ	'horn'
gɛrr-al / gɛrrɛ	'partridge (wild)'
cɔf-al / cɔfɛ	'chicken'
biig-al / biigɛ	'chicken at the age of laying eggs'
cay-gal / caylɛ	'goose'
ɗut-al / ɗutɛ	'vulture'

The suffix **-al** combined with verb stems forms nouns describing cognate or unmarked objects or states related to that verb stem.

object			
kawrit-al / kawritɛ	'meeting'	**hawrudɛ**	'to meet'
nɛl-al / nɛlɛ	'message'	**nɛldɛ**	'to send'
dɛnt-al / dɛntɛ	'union'	**rentudɛ**	'to unite'
ʔardut-al / ʔardutɛ	'foreleg, forepaw'	**ʔardudɛ**	'to go in front'
nat-al / natɛ	'photograph, picture'	**natudɛ**	'to photograph'
baald-al	'cohabitation, living together'	**waaldudɛ**	'to spend the night together'
kɛtt-al	'harvest'	**hettudɛ**	'to harvest'
dɛg-al / dɛgɛ	'crossing river; feast of entering Burgu'	**regudɛ**	'to enter Burgu, descend into Inner-Delta'

state			
ʔanⁿd-al	'knowledge'	**ʔanⁿdudɛ**	'to know'
cipp-al	'exchange of milk'	**sippudɛ**	'to sell milk'
pellis-al / pellisɛ	'decision'	**fellisiddɛ**	'to decide'
gɔɔd-al	'existence'	**woodudɛ**	'to exist'
piiⁿd-al	'flowering season'	**fiiⁿdudɛ**	'to flower'
muɲ-al	'patience'	**muɲudɛ**	'to be patient'
ɓuuɓ-al	'cold, cold period'	**ɓuuɓudɛ**	'to be cold'
tajɔr-al / tajɔrɛ	'certainty'	**tajɔraadɛ**	'to be certain'

7.2.9.2 THE GRADE B SUFFIX FORM **-wal**

The suffix form **-wal** which marks the associative word derivation occurs following stems that are full nouns (i.e. stems that are a combination of a noun stem and a class suffix) or loan-words (Tioulenta 1991:332, 351, 347; Newman & Ma Newman 1977:4).

karkalaawal / karkalaajɛ	'bed made of wood'	**káláka**	[Bmb.]
taanɛwal / taanɛɛjɛ	'big anvil'	**taane**	[Son.]
batawal	'tobacco box'	**baata**	[Son.]
ʔalluwal	'small wooden slate'	**állo**	[Ar., Hausa]
ⁿdawwal, ⁿdawuwal / ⁿdawuujɛ	'ostrich'	**ⁿdawu ⁿgu**	[G., A.]
ᵐbaaluᵐbaaluwal	'amble' (a pace of horses)	**ᵐbaalu**	'sheep'
balawal / balaajɛ	'shoulder'		
bamᵐbalijɛwal	'gallop'		

The form of the word **balawal** 'shoulder' suggests that its stem **bala-** might be a loan-word or another Fulfulde word. This conclusion cannot be verified until the source of this stem is identified properly.

The following nouns have two variant forms, one with the suffix **-wal** and one form where the [w] is reanalyzed as part of the stem.

kɔrɔwal	> ***kɔrwal**	> **kɔwral / kɔwrɛ**	'bobbin'
garuwal	> ***garwal**	> **gawral / garuujɛ**	'mud house'

Metathesis of the consonant sequence [**rw**] resulting in the sequence [**wr**] has occurred in both words. The sequence [**rw**] violates the sonority hierarchy because the first consonant in a sequence of two consonants should not be less sonorant than the second (see section 4.5.3). Metathesis of the sequence of the two consonants has repaired this ill-formed consonant sequence. Sometimes a second form exists where a vowel has been inserted between the two consonants to repair the [**rw**] sequence. The nouns **gawr-al** 'mud house' and **kɔwr-al** 'bobbin' contain the grade A suffix **-al**. After the occurrence of metathesis in the grade B words ***kɔrwal** and ***garwal**, the stem was reanalyzed as consonant final and the suffix as grade A. The plural **garuujɛ** is still grade B.

The augmentative form of a word takes the same suffix form as the normal size noun in the same nominal paradigm. Thus **gɔllal** 'a big job' in the augmentative NGAL class is derived in the same way as the word **gɔllɛ** 'work' in the 'DE class.

gɔlludɛ	'to work' < Soninke
gɔllɛ	'work' ('DE class suffix, often concord 'O class)
gɔllal	'occupation; big job, lit: big work' (NGAL class)

The semantic relation between the derived word and the verb stem from which it is derived remains identical. The grade marker does not change, only the class marker. This explains why augmentative, diminutive, and plural forms within one nominal paradigm always combine with the same suffix grade.

7.2.9.3 THE GRADE C SUFFIX FORM **-gal**

The suffix form **-gal** marks the circumstantial word derivation. Words derived with this suffix denote concepts associated with the NGAL class described by their mode, purpose or intention. Many of the nouns which contain the suffix form **-gal** show the circumstantial morphemes **-ir-** and **-ɔr-** in the stem. The stems in these words are all verbal.

jɔɔɗɔrgal / jɔɔɗɔrɗɛ	'chair, sitting stick in loom'	**jɔɔɗ-**	'sit'
caɲirgal	'loom, weaving place'	**saɲ-**	'weave'
jaaɓirgal / jaaɓirɗɛ	'treadle, pedal'	**yaaɓ-**	'tread, step'
taggɔrgal	'cloth beam'	**tagg-**	'roll out'
cɔcɔrgal / cɔcɔrɗɛ	'tooth brush'	**sɔc-**	'brush teeth'
natirgal / natirɗɛ	'photo camera'	**nat-**	'take a photo'
ʔom^{m}birgal / ʔom^{m}birɗɛ	'lid, cover'	**ʔom^{m}b-**	'cover'
tintɔrgal / tintɔrɗɛ	'mirror'	**tint-**	'perceive'
dibirgal	'grille'		
liw^{n}dɔrgal	'softly walk of a horse'		

The circumstantial extension which generally expresses an instrumental meaning in the above words always combines with the plosive initial form **-gal**. The meaning of the **-gal** suffix denotes mostly stick-like forms, wooden objects, large birds, augmentatives, etc. like all other suffixes of the NGAL class. It differs from the other forms of the NGAL class by its instrumental meaning. The suffix **-gal** occurs synchronically after noun stems which refer to objects of use even when they do not end in the [r] final morphemes **-ir-** or **-ɔr-**.

The many possible forms of the circumstantial extension which occur in different words for pestle are given below. The words are derived from the verb **ʔunudɛ** 'to pound'. Sometimes the word shows two instrumental extensions, sometimes the instrumental extension is omitted, but the stem always combines with the grade C suffix form **-gal**.

ʔun-ir-gal	'pestle, mortar'.	***ʔun-ir-gal**
ʔun-^{n}du-gal	id.	***ʔun-ru-gal**
ʔun-^{n}d-ir-gal	id.	***ʔun-r-ir-gal**
ʔun-u-gal	id..	***ʔun-u-gal**

The following words have an instrumental meaning even though the circumstantial extension is not present. In some of the words, the circumstantial extension is present but does not directly precede the class suffix **-gal**.

nuuy-gal	'pillar in the middle of a house'
ɓirdu-gal / ɓirduɗɛ	'big calabash for milking'
cuwɔɔ-gal, cuwɔr-gal / cuwɔrɗɛ	'paint pit'
ɗalɗu-gal	'shuttle in loom'
dammu-gal	'doorway'
sir-gal, cir-gal / cirɗɛ	'whip for milk'

The words in the above lists are derived from the verbs **nuuydɛ** 'to support', **ɓirdudɛ** 'to milk with', **suuw-a** 'put in water, paint' (Zoubko 1980:457). The other words are probably also derived from verb stems.

The following two words which are formed from the same stem ***lɛh-** 'wood, tree' show that the different suffix forms must be distinguished semantically.

***lɛh- + -al**	**> lahal / lɛhɛ**	'wooden bowl'
***lɛh- + -gal**	**> lɛggal / lɛɗɗɛ**	'branch, wooden stick'

The difference between the above words can only be explained if one assumes two morphologically different suffix forms.

The semantic motivation for the use of the suffix form **-gal** cannot be explained in the following words. Some of the related verbs are not known.

dɛw-gal / dɛwlɛ	'marriage'	**rɛwdɛ**	'to obey, follow'
cɛɛr-gal / sɛɛrlɛ	'divorce, separation'	**sɛɛrdɛ**	'to divorce'
lettu-gal	'east'	**lettudɛ**	'to squint'
pɛsɔ-gal / pɛsɔɔɗɛ	'vaccination trace, tattoo'	**fesudɛ**	'to tattoo, vaccinate'
cay-gal / caylɛ	'goose'		
gɔr-gal	'west'		
tɛr-gal / tɛrɗɛ	'limb/body'		
gɛrtɔ-gal / gɛrtɔɔɗɛ	'fowl; bird: tame, white, resembles a partridge'		

The etymologies of these words are not clear.

7.2.9.4 THE GRADE D SUFFIX FORM -ⁿgal

The suffix form **-ⁿgal** marks the subjective word derivation of deverbal nouns. It is identical in form to the subject concord of the NGAL class. Some of the participles which are formed with the grade D suffix have undergone semantic shifts which resulted in a more specialized meaning.

The class suffix **-ⁿgal** in some of these nouns acts clearly as the subject of the event described by the verb stem. The derived nouns describe the subject of the related verb.

"that which makes steps":	**kɔy^{n}gal / kɔyɗɛ**	'foot, leg'
	hɔsudɛ	'to put foot down, to step'
	kɔsɛkɔsɛ	'noise made by walking cows'
"that which dresses":	**kaddu-^{n}gal / kaddulɛ**	'garment, article of clothing'
	haddudɛ	'wrap around, dress, cover'
"that which is being found":	**tawaa^{n}gal**	'tradition'
	taweɛdɛ	'to be found'
"that which is being kicked"	**lata^{n}gal**	'kick'
	latɛɛdɛ	'to be kicked'
"that which counts":	**lim^{n}gal**	'count(ing), census'
	limudɛ	'count'
"that which proposes":	**ɟam^{n}gal**	'proposal'
	ɟamudɛ	'propose (for marriage)'
"(bird) which travels early":	**daw^{n}gal / dawlɛ**	'raven'
	dawdɛ	'to travel early'
"(bird) which is clever':	**jaaw-^{n}gal / jaawlɛ**	'guinea fowl'
	jaawn-	'be cunning' (Zoubko 1980:257)

Some augmentative nouns take the prenasalized class suffix on analogy with the prenasalized suffix of the noun which denotes the normal size.

kita^{n}gal	'1913, year of great drought'	**hitaa^{n}dɛ**	'year'
dar^{n}gal	'resurrection'	**dar^{n}dɛ**	'standing position'
ʔiiwɔ^{n}gal	'large rainy storm'	**ʔiiwɔɔ^{n}dɛ**	'rainstorm'
ɲii^{n}gal / ɲiijɛɛlɛ	'big tooth'	**ɲii^{n}dɛ**	'tooth'
gɛŋ^{n}gal / gɛllɛ, gɛllɛɛlɛ	'large village'	**^{n}gen^{n}di**	'village'

The augmentative forms of basic grade D nouns are also derived from participles. The participle formation of the basic nouns are explained in the sections on the NDE and NDI classes. Some other nouns which take the suffix form -^{n}**gal** have no clear etymology.

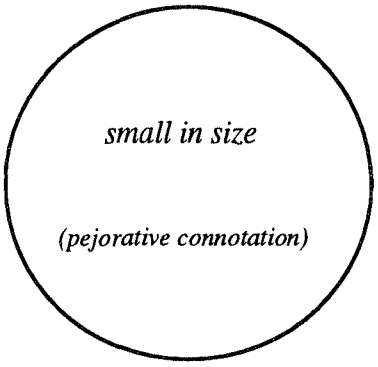
mɛttɛŋ^{n}gal, mɛttaŋ^{n}gal	'flame'
laba^{n}gal / labaalɛ, labaaɗɛ	'bridle'
ɓurtu^{n}gal	'veil of bride (transparent, indigo)'
diw^{n}gal / diwlɛ	'load'
dɔŋ^{n}gal / dɔllɛ, dɔŋ^{n}gɛ	'load'
ɗɛŋ^{n}gal / ɗɛmlɛ	'tongue, language'
ɗɛm^{n}gal / ɗɛmɗɛ, ɗɛllɛ, ɗɛnɗɛ	id.

The morphological formation of the above words suggests that a related verb must have existed. The absence of such a verb is explained by semantic change or by loss of such a verb. Comparative research into related languages and dialects is expected to reveal related verbs. The words are classified as participles because of their morphological formation: they contain the suffix -^{n}**gal** which has the same form as the subject pronoun. The

hypothesis of the deverbal origin of grade D nouns is supported by the occurrence of verbal markers in the stem. The long vowel [**aa**] in the plural of **labaalɛ** 'bridles' could very well be the completive passive marker, the morpheme **aŋ** preceding the suffix in **mɛttaŋⁿgal** could be the historical form of the active incompletive in participles ***an**.

7.2.10 THE NGEL CLASS

The meaning of the NGEL class can unambiguously be described as "small". The nouns in this class are mostly diminutive derivations of nouns which occur in another class that denotes its normal size. There are only a few inherently small objects which only occur in the NGEL class. It contains nouns denoting small persons or things. The semantic content of the NGEL class in Maasina is represented in the following figure.



In most Fulfulde dialects the NGEL class has connotations of both disparagement and affection (see also Arnott 1970a:81). The indication of a size which is smaller than the normal size of a person or thing resulted in a pejorative association and connotations of disparagement. It is only in the Maasina dialect that the meanings of the words in the diminutive class rarely imply an affectionate connotation. Potential terms for affectionate connotations are words denoting young animals and young children. But in Maasina even the word **ɓiɓɓɔ** 'child' is preferred to **ɓiŋⁿgel** 'small child, baby'. A baby is called **wusiwusi** 'baby before naming' (i.e. before the seventh day of its life when it receives a name, after which the term **ɓiɓɓɔ** 'child' is used). Some speakers also prefer the word **ɲalɛ** 'calf' to **ɲalel** 'calf'.

The diminutive NGUM class does not occur in Maasina. Its meanings in a dialect of Sierra Leone (affectionate association: **paykuŋ** 'little friend') and in the Gombe and Aadamaawa dialects (pejorative association: **ɓiŋⁿgum** 'terrible child') indicate that some semantic shifts concerning the connotations of the diminutive classes have taken place.

The nouns which take the NGEL class marker in the singular always form their plural by replacing the NGEL class suffix with the plural KOY class suffix. In general the type of word formation, i.e. the grade of the class suffix, is identical to the word formation of the unmarked or normal size form of the noun. The diminutive looks like a very productive class. There are however restrictions as to which nouns can have a corresponding diminutive form. A diminutive form was reluctantly given in some instances, consultants often commented that the form was actually too far-fetched. The formation of diminutive nouns is restricted by the semantics of the noun. Diminutive forms could not be provided by informants when a small version of the denoted item was not imaginable. A comment on

the following word by one consultant indicates why young animals generally do not form a diminutive noun:

wiigɛ	'mature heifer'
biigel	"I don't see how that can be. A heifer is already a small (young) animal. Well, perhaps if it is one that is very small in size." [comment given with sounds of disapproval, the consultant could not form a plural]

Not all consultants allow the same diminutive formations. The plural of the diminutive **biigel** 'small mature heifer' was refused by the consultant quoted above from Sabara (centre of Maasina). An informant from Toggere Kumba (also in the centre of Maasina) could form the plural diminutive **ᵐbiigoy** 'small mature heifers' without much trouble. Sometimes only the singular diminutive form was given. The plural diminutive forms and the augmentative forms of the following two nouns could not be given.

yanaa-ⁿdɛ / janaa-lɛ	'tomb/graveyard'	**janaa-ⁿgel**
wɔl-dɛ / gɔlwɔl-ɛ	'war'	**golwol-el**

There are many words for which the diminutive simply does not seem to be possible. Diminutive forms were refused for nouns describing noises, some body parts, a number of abstract nouns, and some animals.

The examples of words in the NGEL class are always given paired with a plural form in the KOY class in this section. The comparison of these forms can sometimes indicate the phonological changes which occur in the nominal paradigm. A comparison of the "normal size" nouns with the diminutive form also shows that one stem combines with one suffix grade in one nominal paradigm. The hypothesis is that the stems are not identical when the paradigm shows apparent exceptions to this rule. Different stems result from combinations with different derivational markers. In some nominal paradigms, a reanalysis of the stem has taken place due to complicated stem final consonant changes (often resulting from a merger of the stem final consonant with a suffix initial consonant).

The following suffix forms occur in the NGEL class.

grade A:	**-el**	objective word derivation
grade B:	**-wel**	associative word derivation
grade C:	**-gel**	circumstantial word derivation
grade D:	**-ⁿgel**	subjective word derivation

There is also a suffix form **-lel** which seems to be a reanalysis of a stem that combines in the plural with the morpheme -l- expressing "different kinds of ". This plural suffix form occurs in all types of word derivation.

The nouns in the NGEL class take the initial alternating consonant from the plosive series, like all classes with a suffix ending in [l]. The suffix of the NGEL class contains the [+ATR] vowel [e] which causes ATR vowel harmony on the preceding [-low] vowels.

7.2.10.1 THE GRADE A SUFFIX FORM **-el**

The suffix form **-el** marks the objective word formation. It can combine with verbal and nominal stems. The suffix form of the diminutive classes takes the same suffix grade as the basic (normal size) noun. This is shown in the following examples.

dewt-el / ⁿdewt-oy	'small book'	**dɛwt-ɛrɛ / dɛwt-ɛ**
jaw-el / ⁿjaw-oy	'small bracelet'	**jaw-ɔ / jaw-ɛ**
gɔrb-el / gorb-oy	'small male donkey'	**ⁿgɔrb-a / gorb-i**
kor-el / kor-oy	'small calabash spoon'	**hɔr-dɛ / kɔr-ɛ**

Some diminutive nouns that take the objective word derivation show stem final consonant alternation in the basic noun.

dew-el / ⁿdew-oy	'small woman'	**dɛbb-ɔ / rɛw-ɓɛ**
ɲiib-el / ɲiib-oy	'small elephant'	**ɲiiw-a / ɲiib-i**
pooɓ-el / pooɓ-oy	'small base'	**fɔɔm-rɛ / pɔɔɓ-ɛ**
julɓ-el / julɓ-oy	'small piece of charcoal'	**julm-ɛrɛ / julɓ-ɛ**
boɓ-el / ᵐboɓ-oy	'small mortar'	**wow-ru / boɓ-i**
jah-el / jah-oy	'small scorpion'	**yaa-rɛ / jah-ɛ**
koh-el / koh-oy	'small head'	**hɔɔ-rɛ / kɔh-ɛ**
gah-el / ⁿgah-oy	'small bull'	**ⁿgaa-ri / gay**
pul-el / pul-oy	'small Pullo'	**pull-ɔ / ful-ɓɛ**
taj-el / taj-oy	'small part'	**tay-rɛ / taj-ɛ**

Stem final consonant changes can be the result of a merger between the stem final consonant an the suffix initial glottal stop in the 'O class (**dɛbbɔ** 'woman'), 'DI class (**ɲiibi** 'elephants'), and 'DE class, or the result of changes in sonority in syllable final position. The possible stem final consonant changes are summarized below.

underlying	before vowel	merger with *ʔ	syllable final	reanalyzed dim. stem
*f	f	pp	w	pp
*w	w	bb/b	w	bb/b
*m	m	ɓ	m	ɓ
*ɓ	ɓ	ɓ	w	
*l	l	ll	l	
*h	h		V	

When consonant change occurs in the basic singular/plural noun formation, the diminutive can be formed from the surface form of the stem in either the singular or the plural. This can lead to one diminutive having two alternative stems.

underlying (singular) stem		reanalyzed plural stem	
***hɔf-**		***hɔpp-**	
how-ru / kopp-i	'knee'	**kopp-i**	'knees'
kof-el / kof-oy	'small knee'	**(kopp-el / kopp-oy)**	'small knee'
kɔf-al / kɔf-ɛɛlɛ	'large knee'	**(kɔpp-al) / kɔpp-ɛɛlɛ**	'large knee'
***nɔf-**		***nɔpp-**	
now-ru / nopp-i	'ear'	**nopp-i**	'ears'
nof-el / nof-oy	'small ear'	**nopp-el / nopp-oy**	'small ear'
nɔf-al / nɔf-ɛɛlɛ	'large ear'	**nɔpp-al**	'large ear'
***fɔw-**		***fɔbb-**	
fow-ru / pobb-i	'hyena'	**pobb-i**	'hyenas'
powel / powoy	'small hyena'	**pobbel / pobboy**	'small hyena'
pɔw-al / pɔw-ɛɛlɛ	'large hyena'	**pɔbb-al / pɔbb-ɛɛlɛ**	'large hyena'
***saw-**		***sabb-**	
saw-ru / cabb-i	'staff'	**cabb-i**	'staffs'
caw-el / caw-oy	'small staff'	**cabb-el / cabb-oy**	'small staff'
caw-al / caw-ɛɛlɛ	'large staff'	**(cabb-al) / cabb-ɛɛlɛ**	'large staff'
***lɛw-**		***lɛbb-**	
lew-ru / lebb-i	'moon, month'	**lebb-i**	'months'
lew-el / lew-oy	'small moon'	**lebb-el / lebb-oy**	'small moon'
lɛw-al / lɛw-ɛɛlɛ	'large moon'	**lɛbb-al / lɛbb-ɛɛlɛ**	'large moon'

The stem final [**f**] becomes [**w**] syllable finally (see section 4.5.2). The geminate consonants [**pp**] and [**bb**] in the plural 'DI class are the result of a merger between the suffix initial glottal stop and the stem final [**f**] and [**w**] respectively. This merger results in a geminate consonant that is [-continuant] (see section 2.3.2). The geminates have been reanalyzed as part of the stem in the alternative diminutive form. The forms in parentheses are not frequent. The following diminutive forms show an irregular consonant final alternation compared to the basic nouns.

	'house, room'	'belly'
basic	**suu-du / cuu-dì**	**ree-du / dee-dì**
diminutive	**cuur-el / cuur-oy**	**deer-el / ⁿdeer-oy**
augmentative	**cuur-al / cuur-ɛɛlɛ**	

The hypothesis is that these basic nouns are derived using grade C suffixes. The merger of the stem final consonant with the suffix initial consonant resulted in a marginal CVVC syllable which led to the shortening of a geminate [**dd**]. The shortened [**d**] was reinterpreted as the stem final consonant in the diminutive forms which weakened in inter vocalic position. As a result the diminutive and augmentative forms are derived using a grade A suffix, whereas the normal size noun is derived using a grade C suffix.

***suuɗ + *du**	**> *suuddu**	**> suu-du**
***suuɗ + *ɗi**	**> *cuuɗɗi**	**> cuu-ɗi**
***suuɗ + *ɣel**	**> *cuudel**	**> cuur-el**
***suuɗ + *χoy**	**> *cuudoy**	**> cuur-oy** etc.

There are a few nouns in the NGEL/KOY class pair without a related basic noun. These words denote items which are inherently small.

cebbet-el leɓet-el	'highest branch in a tree'
nakaɓell-el / nakaɓell-oy	'earlobe'
ɲabar-el / ɲabaroy	'chisel'
gedd-el ʔalla	'kind of salamander'
kams-el / kams-oy, kamselaaji	'dress'

The word **kamsel** 'blouse, dress (garment sewn on a machine)' is derived from the French word "camisole" 'dress'. The last syllable in the word **kamsel** is reinterpreted as the class marker of the NGEL class. This interpretation has motivated the replacement of the suffix in the singular with the plural suffix **-oy** in the plural. An alternative plural with the suffix **-aaji**, typical for consonant final loan-words, is also attested in Maasina.

7.2.10.2 THE GRADE B SUFFIX FORM **-wel**

The meaning of the suffix **-wel** in the associative word formation is "something small having a semantic association with the meaning which is expressed in the stem". This suffix replaces grade B suffixes of the basic noun to form diminutives.

cagi-wel / cagi-woy	'little basket'	**sagii-rɛ / cagii-jɛ**
taane-wel / taane-woy	'little anvil'	**taanɛɛ-rɛ / taanɛɛ-jɛ**
kuuse-wel	'little stomach'	**huusee-ru / kuusee-ji**

Some nouns form their plural by adding a grade B suffix to the full singular noun. These nouns use the same strategy to derive diminutive (and augmentative) forms.

ɟoŋⁿgo-wel / ɟoŋⁿgo-woy	'little cow hump'	**ɟɔŋⁿgɔ / ɟoŋⁿgoo-ji**
duko-wel / ⁿduko-woy	'little dispute'	**duk-ɔ / dukoo-ji**
tuuba-wel / tuuba-woy	'little trousers'	**tuuba / tuubaa-ji**

All these examples show a vowel shortening rule in the penultimate syllable. This rule occurs in the environment where a long vowel in the penultimate syllable precedes a heavy syllable with a CVC shape (see section 4.2.2).

7.2.10.3 THE GRADE C SUFFIX FORM **-gel**

The suffix form **-gel** marks the circumstantial word derivation. The grade C suffix occurs always when the circumstantial extension **ir/ɔr** is present in the stem.

jaŋ^{n}girgel	'writing slate'
ciwtorgel	'utensil made of sisal to separate rice from water'
ʔee^{n}dirgel	'measuring rod (to make pattern of weaving fitting)'
dim^{m}borgel	'swipe, sweep (of pit)'
bin^{n}dirgel	'small feather to write with'

Nouns can also take a suffix of the circumstantial derivation without the presence of the extension **ir/ɔr**.

jaw-gel / jaw-koy, ^{n}jaw-koy	'little ram'	**^{n}jaw-di-ri / jaw-ɗi**
gaaɓo-gel / gaaɓo-koy, gaaɓo-loy	'little jaw'	**gaaɓɔ-gal / gaaɓɔɔlɛ**
cay-gel / cay-loy	'little goose'	**cay-gal / cay-lɛ**

The grade C suffix adds a semantic aspect of "purpose, intention, mode, manner" to the noun derived from a verb stem. The semantics of these grace C words is explained in the sections on the suffix forms of the related basic nouns.

7.2.10.4 THE GRADE D SUFFIX FORM -^{n}**gel**

The suffix form -^{n}**gel** is identical in form to the subject pronoun of the NGEL class. This suffix marks the subjective word derivation. Basic nouns which are derived using the subjective word derivation also use the suffix forms of grade D in the diminutive and augmentative forms.

daŋ-^{n}gel / ^{n}daŋ-koy	'little he-goat'	**^{n}dam-^{n}di / dam-ɗi**
kaykay-^{n}gel	'little gall bladder'	**hayhay-^{n}dɛ / kaykay-ɗɛ**
ɓiŋ-^{n}gel / ɓik-koy	'little child'	**ɓiɗ-ɗɔ / ɓiɓ-ɓɛ**
juŋ-^{n}gel / juu-koy	'little hand, arm'	**juŋ-^{n}gɔ / juu-ɗɛ**
janaa-^{n}gel	'little grave'	**yanaa-^{n}dɛ / janaa-lɛ**
ʔiiwo-^{n}gel	'little rainstorm'	**ʔiiwɔɔ^{n}gɔ / ʔiiwooli**
bilbil^{n}gel / bilbilkoy	'little bat'	**wilwil^{n}dɛ / bilbilɗi**
laba-^{n}gel / laba-koy	'little bridle'	**laba-^{n}gal / labaalɛ, labaaɗɛ**

Reanalysis of the stem can occur when the word derivation has become opaque. There is no verb stem synchronically present that can explain the derivation of the word **ɗɛŋ^{n}gal/ɗɛllɛ** 'tongue'. The different plural forms already indicate the unstable form of the stem. The diminutive plural form **ɗeŋ^{n}g-oy** contains a reanalyzed form of the stem.

NGEL	KOY		NGAL	'DE	
ɗeŋ-^{n}gel	**ɗeŋ-koy**	'uvula'	**ɗɛm^{n}gal**	**ɗɛm-ɗɛ, ɗɛn-ɗɛ**	'tongue'
ɗeŋ^{n}g-oy			**ɗɛŋ^{n}gal**	**ɗɛm-lɛ, ɗɛl-lɛ**	

A similar reanalysis has occurred in the nominal paradigm of 'tooth'. The stem is historically ***ɲiiŋ-** ending in a nasal consonant, combining with the suffix allomorph ^{n}**dɛ** of grade A that occurs after nominal stems ending in an alveolar nasal.

*ɲiiɲ+*rɛ > *ɲiin^{n}dɛ > ɲii^{n}dɛ	'tooth'
ɲiiɲ+^{ʔ}ɛ > *ɲiiɟɟɛ > ɲiiɟɛ	'teeth'

The singular suffix form is reanalyzed as a grade D suffix. The singular stem is reanalyzed as *ɲii-. The singular augmentative form and the diminutive forms are based on this reanalyzed stem. The plural is formed by the addition of grade A suffix *^{ʔ}ɛ to the stem *ɲiiɲ-. A merger between the stem final nasal [ɲ] and the suffix initial glottal stop resulted in the final consonant [ɟ] of the stem *ɲiiɟ- on which both the plural and the augmentative plural forms are based.

ɲii-^{n}dɛ / ɲiiɟ-ɛ	'tooth'
ɲii-^{n}gel / ɲii-koy	'small tooth'
ɲii-^{n}gal / ɲiiɟ-ɛɛlɛ	'large tooth'

Most nouns derived using the subjective word derivation combine regularly with the suffix forms of grade D throughout their paradigm.

7.2.10.5 THE SUFFIX FORM **-lel**

The suffix **-lel** is found in nominal paradigms which combine, in the singular, with all four types of word derivational suffixes, i.e. with all four suffix grades.

Suffix **-lel** in nominal paradigms of all grades:

grade A	**moorol / moolli**	'braid, plait'	**moolel / mooloy**
			moollel / moolloy
grade B	**suka / sukaaɓɛ**	'child'	**cukalel / cukaloy**
grade C	**fɛddɛ / pɛllɛ**	'age group'	**pellel / pelloy**
	hoɟɟudu / koɟɟuli	'occipital hole'	**koɟɟulel / koɟɟuloy**
	naawki / naawlɛ, naawkiiji	'armpit'	**naawlel / naawloy**
	wuddu / gulli	'navel'	**gullel / ^{n}gulloy**
grade D	**wee^{n}du / beeli**	'pool, pond'	**beelel / ^{m}beeloy**
	wii^{n}dɛ / billɛ	'corral'	**biilel / ^{m}biiloy**
	ɓun^{n}du / ɓulli	'pit, well'	**ɓulel / ɓuloy**
	foo^{n}du / pooli	'bird'	**poolel / pooloy**
	waɓɓu^{n}gɔ / gaɓɓulɛ	'cheek'	**gaɓɓulel / gaɓɓuloy**
	feɗee^{n}du / peɗeeli	'finger'	**peɗelel / peɗeloy**
	faa^{n}du / paali	'gourd'	**paalel / paaloy**
	wutaa^{n}du / butaali	'cob of millet'	**butalel / butaloy, ^{m}butaloy**
	yee^{n}du / jeeli	'ant-eater'	**jeelel / ^{n}jeeloy**

All diminutive forms which combine with the suffix form **-lel** use the suffix form **-loy** in the plural. The recurrence of the [l] in both singular and plural forms indicates that the consonant [l] could be analyzed as part of the stem. Another regularity is that the basic plural always uses the suffix forms **-lɛ** or **-li** when the diminutive uses the suffix forms **-lel** and **-loy** (with the exception of the word **cukalel** 'small child' vs. **sukaaɓɛ** 'children'). The

hypothesis is that reanalysis of the morpheme boundary between stem and suffix has taken place in the basic plural, where the morpheme [l] originally expressed "diversity" or "large quantities of". The many variants of the stem within one paradigm indicate that reanalysis is taking place. The consonant [l] is sometimes only found in the plural, sometimes the consonant [l] occurs also in the singular diminutive stem.

singular	plural		sg. dim.	pl. dim.
ɗɔŋ-ⁿgal	**ɗɔŋⁿg-ɛ, ɗɔl-lɛ**	'load'	**doŋ-ⁿgel**	**ⁿdol-loy, ⁿdoŋⁿg-oy**
wuugaa-ⁿdu	**buugaa-li**	'pigeon'	**buuga-lel buuga-wel**	**ᵐbuuga-loy**
huu-ⁿdɛ	**kul-lɛ**	'thing'	**kul-lel kuŋ-ⁿgel**	**kul-loy kun-koy**

The reanalysis of the morpheme boundary between stem and suffix is responsible for the different suffix forms. There is an implicational scale indicating the appearance of the consonant [l]: if **-lel** then **-loy** then **-lɛ** or **-li**. It also happens that only the plural forms contain the consonant [l]. The implication is the following: if **-loy** then **-lɛ** or **-li** (see section 7.4.4.1).

The suffix form **-lel** is considered to be an a-typical suffix form (Arnott 1970a:88). It is not a coincidence that the consonant [l] only appears before the suffixes of the class suffixes that are used in the more productive diminutive, augmentative, and plural word formations. The implicational scale indicates that the consonant [l] appears first in the plural form, from there it is reanalyzed as part of the stem on which the diminutive and augmentative word formation is based.

7.2.11 THE KOL CLASS

The KOL class in the Maasina dialect contains only one word: **dammulol/dammuli** 'lamb, kid'. The form of the noun class suffix in this word is **-ol**. This suffix form is identical to the grade A suffix of the NGOL class. The fact that this word belongs to the KOL class can only be inferred from the concord which has the form **kol**. The concord **kol** occurs as a subject and object pronoun and it is the form of the suffix in participles, demonstratives, the genitive and other concording forms that agree with the KOL class. A remarkable thing about this class is the fact that it seems to contain only one word. But different words occur in different dialects in the KOL class. This class seems to contain only one word in each dialect.

Maasina:	**dammul-ol / dammuli**	'lamb, kid'
Fuuta Jallon:	**dammul-ol / dammuli**	'lamb, kid'
Sierra Leone:	**ɲal-ol / ɲali**	'calf'
Nigeria:	**ɲala-hol / ɲalbi**	'calf'
Aadamaawa:	**ɲala-hol / ɲalbi**	'calf'
Liptaako:	**pucc-ol**	'foal, filly'

The semantic content of this class seems to be young livestock. But there must be another restriction because not all names for young cattle are found in the KOL class. The following figure represents the semantic content of the KOL class.

Possibly the KOL class is an innovation of Fulfulde which is derived from the NGOL class, separating animate and inanimate nouns in the proto-class that contained both words of the NGOL class and the KOL class. A possible semantic link between calves, lambs, and kids and the meaning "rope" of the NGOL class is the fact that these young animals are tied down at the neck with a **daa^{n}gol** 'a rope with which young animals are tied down to prevent them from drinking milk from their mother'.

The rest of the words for young cattle are found in the classes where the word for the species of the adult animal is found. Names of young animals are the diminutive forms in the NGEL class of the adult animal when no special word for the young one exists. The following words occur in Maasina.

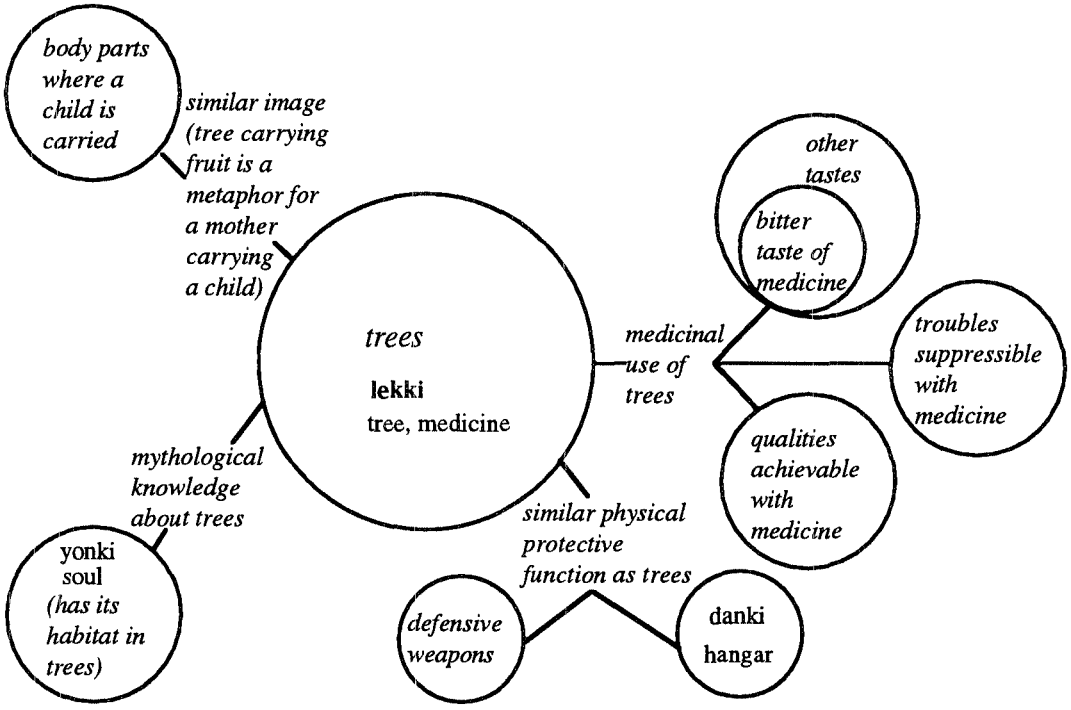
young animal		adult animal	
ɲal-ɛ ^{n}gɛ	'calf'	**nagg-ɛ ^{n}gɛ**	'cow'
wadd-ɛ ^{n}gɛ	'yearling'	**nagg-ɛ ^{n}gɛ**	'cow'
^{m}badd-iri ^{n}di	'male yearling'	**^{n}gaa-ri ^{n}di**	'bull'
ɓɔt-a ba	'kid'	**^{m}bɛɛ-wa ba**	'goat'
bɔsaa-ru ^{n}du	'puppy'	**rawaa-^{n}du ^{n}du**	'dog'
^{m}boort-u ʔɔ	'lamb, 2 years'	**^{m}baal-u ʔɔ**	'sheep'
mol-u ʔɔ	'foal, filly'	**pucc-u ʔɔ**	'horse'
mɔl-a ba	'donkey's foal'	**^{n}dakii-wa ba**	'donkey'
jaw-gel ^{n}gel	'small ram'	**^{n}jawd-iri ^{n}di**	'ram'

The above examples show that stems can enter a certain class on the analogy of a word in that class. The stem **mɔl-** with a suffix of the NGU class refers to a young horse, the same stem with a suffix of the BA class denotes a young donkey. The use of the concord of the 'O class has replaced the taboo concord of the NGU class, but the noun suffix is still of the NGU class (cf. section 7.2.7). This does not imply that the meaning of the NGU suffix is horse, and that the BA suffix would mean donkey. The meaning of the stem is "foal" and the analogous association of the words in the NGU or BA classes specifies whether the foal

is from a horse or a donkey, because the nouns **puccu** 'horse' and **ⁿdakiiwa** 'donkey' belong to those two different classes.

7.2.12 THE KI CLASS

The following figure shows the network of semantic associations which are proposed to explain the grouping of the nouns in the KI class.



trees		*body parts carrying children*		*qualities achievable with medicine*	
lekki	tree, medicine	**keeci**	lower back	**ŋari**	beauty
ʔoroowi	baobab	**naawki**	armpit	**mojjuki**	goodness
ⁿduɓɓi	doum palm	**laaci**	tail		

protection against wind, sun		*medicine: its taste*	
ⁿdaŋki	hangar	**kaaɗeefi**	bitterness

protective weapons		*troubles suppressible with medicine*	
laɓi	knife	**ⁿguleefi**	heat
silaamuuwi	sword	**ᵐbonki**	badness

The KI class contains nouns denoting names of trees. The word **lekki** is polysemous, it means both 'tree' and 'medicine'. The KI class contains words which denote concepts of protection, because of the protective use of medicines which are traditionally made from the bark and other parts of trees. A good medicine is supposed to be bitter, so a word like **kaaɗeefi** 'bitterness' can be semantically associated with the KI class via the medicinal use of trees. Possibly the grouping of the abstract nouns in the KI class is semantically motivated by the fact that they denote qualities (**ŋari** 'beauty') which one tries to achieve or troubles (**ⁿguleefi** 'heat of the body, sweat') which one tries to get rid of by taking

medicine. The word **ⁿdaŋki** 'hangar, wind-break' is in the KI class. Perhaps it is the association of the functions of both a tree and a hangar with shade and the protection from wind and sun that places the word **ⁿdaŋki** 'hangar' in the tree class. Weapons can also be seen as defensive, their protective connotation motivates the occurrence of the words for knife, razor, sword, and other cutting weapons in the KI class. The few body parts that are found in this class are: **keeci** 'bottom', **laaci** 'tail', and **naawki** 'armpit'. The protective connotation and a metaphorical association between "tree" and "mother" motivates the association of these body parts in the KI class. A mother carries her child on her back or under the arm, like a tree carries fruit on its branches or stem. The word **keeci** denotes the lower back where the child sits when it is carried on the back. Baaba Maal (Maal & Seck 1989) remembers this place when he sings about his childhood: **keeci ki wamᵐbaami** 'the back that I was carried on'. The word **naawki** 'armpit' literally means "used for carrying under the arm". The sentence **ɓiɓɓɔ woni ʔɛ naawki** 'the child is at the armpit' describes a child on the side of the mother with the head peeping through her arm (to reach for a breast). The tail **laaci** is included together with **keeci** 'lower back, bottom' in the KI class because they are situated in the same place. Perhaps the word **yoŋki** 'soul' is in the KI class because trees (especially the baobab) are said to be the dwelling place of the souls.

The initial consonant of nouns in the KI class is chosen from the prenasalized consonant series in the dialect of Maasina. Some nouns do not undergo the initial consonant alternation but occur with an initial consonant from the plosive or continuant series. Maasinankoore differs from other dialects with respect to the initial consonant series of this class. Nouns in the KI class take an initial consonant from the plosive series in other dialects. The initial consonant of the KI class is also prenasalized in Liptaako (Bidaud & Prost 1982:38-9). In Gombe, nouns in the KI class have an initial consonant from the plosive series, but infinitives which take the suffix of the KI class do not undergo consonant alternation. The KI class takes the initial consonant from the plosive series in dialects to the east of Maasina, such as Aadamaawa (Klingenheben 1963) and Jamaare (Noye 1974), and dialects to the west of Maasina, such as Gambian Firdu Fula (Gamble & Baldeh 1981). The initial prenasalized consonant in the KI class in Maasina and Liptaako is thought to be an innovation because its occurrence is restricted to these adjacent dialect groups. The innovation emphasizes the difference between a stem in the singular KI and a stem in its plural 'DE class. The suffix forms which occur in the KI class are given in the following table.

grade A:	**-i**	objective word derivation
grade B:	**-wi**	associative word derivation
grade C:	**-ki**	circumstantial word derivation
grade D:	**-ki**	subjective word derivation
a-typical:	**-eefi**	abstract nouns

The distribution and meanings of these suffixes are discussed in the following sections.

7.2.12.1 THE GRADE A SUFFIX FORM -i

The suffix form **-i** marks the objective word derivation. It is typically found after nominal stems.

keec-i / keeciiji	'hip'
laac-i / lacɛ, laccɛ	'tail'
tann-i / tannɛ	'desert date (Balanites aegyptiaca)'
ⁿgawd-i / gawdɛ	'tree good for charcoal (Acacia nilotica)'
ⁿduɓɓ-i / duɓɓɛ	'lontarpalm (Borassus flabelliformis aethiopum)'
koh-i / kɔhɛ	'best tree for charcoal (Proposopis oblonga)'

There are a few nouns in this class which have a stem which also occur as stems in verbs.

laɓ-i / laɓɛ	'knife'	**laɓudɛ**	'to shave'
ŋar-i	'beauty'	**ŋarɗudɛ**	'to be beautiful'

The verb **ŋarɗudɛ** is derived from the noun stem rather than vice versa. Possibly the verb **laɓudɛ** 'to shave' is derived from the noun **laɓi** 'knife'. The word **laɓi** 'knife' poses a problem if it is derived from the verb, since it is not the cognate object but the instrument with which one can shave. Instruments usually take the circumstantial word derivation, e.g. the word **laɓorki** 'razor'. The cognate object **lamru** 'shave; shaving of baby at name giving day' appears in the NDU class.

7.2.12.2 THE GRADE B SUFFIX FORM **-wi**

The suffix form **-wi** occurs in secondary nouns, i.e. nouns derived from stems which in their own right are full nouns. In Maasina this suffix form cannot be explained by inter vocalic weakening. In that case the expected form would be **-hi** as it is in other dialects (Gombe, Aadamaawa).

dibinohi 'date palm'

The suffix **-hi** occurs in the KI class only in this one word of the data gathered in Maasina. All other words based on a full noun as the stem take the allomorph **-wi**. The suffix **-wi** is a composite form which is based on the grade marker ***ɥ** and the regular class marker ***-hi**. It has the meaning "something of the KI class that is like/associated with (the meaning of the noun which forms the stem)".

ʔoroowi	'baobab'	**ʔɔrɔ kɔ**	'(sauce of) baobab leaves'
ⁿgoroowi	'kola-nut tree'	**gɔrɔ ⁿgɔ**	'kola-nut' (generic term)
maaⁿgoroowi / maaⁿgɔrɔɔjɛ	'mango tree'	**maaⁿgɔrɔ ⁿgɔ**	'mango fruit'
silaamuuwi / silaamuujɛ	'sword, sabre'	**silaamu** [Ar.]	'Islam'
kupukupuuwi	'machete'	**kupkup** [Fr.]	'machete' (Tioulenta 1991:338)
taamuuwi	'kapok tree'	**taamu ʔɔ**	'silk-cotton, kapok'

The nouns which function as stems of this type of word derivation with the suffix **-wi** generally do not undergo initial consonant alternation.

ⁿgelleewi / gɛllɛɛjɛ 'doum palm (Hyphaena thebaica)' **gɛllɛ** 'villages'

The example above shows that some nouns with the denominal formation using the **-wi** suffix do undergo initial consonant alternation. The alternative form **ⁿgelleewi** without initial consonant alternation is also encountered in Maasina. The semantic relation between "villages" and the "doum palm" could be that this multi-purpose tree is grown in and near villages. The leaves are used for matting, the branches and stem are used as construction wood. The semantic link could also lie in the fact that this tree is used to build villages.

7.2.12.3 THE GRADE C SUFFIX FORM **-ki**

The suffix form **-ki** marks both the circumstantial and subjective word derivation. These two suffixes cannot be distinguished because the prenasalization which marks grade D suffixes is always lost when the suffix initial consonant is voiceless. The circumstantial word derivation can be recognized by the appearance of the circumstantial extension **ir/r** in the stem.

laɓorki / laɓɔrɗɛ	'razor'	**laɓudɛ**	'to shave'
pemᵐborki / pɛmᵐbɔrɗɛ	'razor'	**femb-oo**	'to shave' (Zoubko 1980:169)

It is only the semantic content of the word and its comparison with other words in the same nominal paradigm that can give an indication of the actual word derivation when the circumstantial grade marker **[r]** and the subjective grade marker **[n]** do not appear in the surface form.

naawki / naawlɛ 'armpit' **naafaadɛ** 'carry under the arm'

The word **naawki** 'armpit' could be paraphrased as a circumstantial word derivation: "tree-associated body part (carrying children) with the purpose of, used for carrying under the arm". The etymology of a subjective word formation would be: "tree-associated body part (carrying children) which carries under the arm". The circumstantial etymology is more plausible. It is the person to whom this body part belongs that would be the subject of the verb stem **naafaadɛ** 'to carry under the arm'. The armpit **naawki** is a circumstance of the event described by this verb: the place or instrument prototypically formed with the circumstantial word derivation.

The nominal paradigms of the following two words **lekki** 'tree' and **ɓokki** 'baobab' are complex. Related nouns in these nominal paradigms combine with different suffix grades.

Nominals derived from the same stem ***lɛh-** or ***lɛʔ-**:

lekki	'tree, medicine'
lɛggal	'branch, stick'
lɛɗɗɛ	'trees, medicines, branches, wood'
lahal	'wooden bowl'
lɛhal	'wooden bowl'
leʔal	'wooden bowl' [Gambian Firdu] (Gamble & Baldeh 1981)
laʔal	'wooden bowl' [Gambian Firdu] (Gamble & Baldeh 1981)

The word **lekki** is based on a nominal stem which should combine with a grade A suffix. Probably the stem final consonant [ʔ] merged with the suffix initial underlying continuant consonant *χi to form a geminate obstruent [**kk**], after which the suffix form **-ki** was reanalyzed as a suffix of the circumstantial word derivation because a tree is considered to be useful. Perhaps the usefulness of **lekki** 'tree, medicine' motivates the circumstantial word derivation, where the grade marker indicates "purpose, use, intention, manner". The word **lahal** 'wooden bowl' which is derived from the same stem ***lɛʔ-** is formed with in the objective word derivation. The words **lɛggal** 'branch' and the plural **lɛɗɗɛ** 'trees, branches' followed the reanalysis, combining with grade C suffixes. A similar reanalysis can be found in the nominal paradigms related to the stem in the word **ɓokki** 'baobab tree'. (The word **ʔoroowi** 'baobab tree' is better known in Maasina).

Nominals derived from the same stem ***ɓɔh-** or ***ɓɔʔ-**:

ɓokki	'baobab, monkey bread tree'
ɓɔkkɔ	'baobab foliage; sauce of baobab foliage'
ɓɔhɛrɛ	'fruit of the baobab'
ɓɔhɛ	'baobabs, fruits of the baobab'
ɓoggol	'rope (originally of fibres of the baobab bark)'
ɓoggi	'ropes'
ɓɔggɛrɛ	'small piece of rope'

The stem of the word **ɓokki** is nominal and is therefore expected to combine with a grade A suffix which actually does occur in the plural form **ɓɔh-ɛ** 'baobabs'. The hypothesis is that a phonological reanalysis of ***ɓɔʔ+χi** > **ɓokki** has taken place motivated by the usefulness of the baobab as source of food and ropes, usefulness being expressed by the circumstantial derivation. The circumstantial suffix form **-gol** is also used in the formation of the word **ɓoggol** 'rope' which is derived from the same stem. The geminate [**gg**] is reanalyzed as being part of the stem in the derived plural form **ɓoggi** and in the word **ɓɔggɛrɛ** 'small piece of rope'. The foliage of the Baobab **ɓɔkkɔ** which is very much sought after to use in sauces combines with the circumstantial suffix form. The plural form **ɓɔhɛ** which is also the plural of **ɓɔhɛrɛ** indicates that this nominal stem does combine with a suffix of grade A. The use of the grade C form in these words is thought to be an innovation, indicating the innovative character of the grade system for Fulfulde word formation.

The meanings of the following nouns indicate that these nouns are derived using the circumstantial suffix form **-ki**, rather than the subjective word derivation marked by a suffix of the same shape.

paaŋki, paakki, pakki	'narrowness'	**faaɗ-udɛ**	'to be narrow'
kemki, kekki	'greed'	**heɓ-udɛ**	'to obtain, to get'
ⁿjuunki, ⁿjuukki, ⁿjukki	'length'	**juut-udɛ**	'to be long'
ᵐboŋki	'badness'	**bon-udɛ**	'to be bad'
mɔjjuki	'goodness'	**mɔjj-udɛ**	'to be good'

These words are analyzed as nouns formed with the circumstantial word formation expressing "manner, mode". They describe qualities. A quality is a mode of being. Homonymous forms in the subjective word formation are the adjectives of these qualities (see section 7.2.12.4). These quality nouns only occur in the KI class whereas the related adjectives can occur with suffixes of all classes.

7.2.12.4 THE GRADE D SUFFIX FORM **-ki**

The grade D suffix is used to form participles. Deverbal adjectives are formed like participles (see section 8.1.5). The adjectives are listed here to show their homonymy with the quality nouns in grade C.

ⁿdaŋki paakki	'narrow hangar'	**faaɗ-udɛ**	'to be narrow'
yoŋki kemki	'greedy soul'	**heɓ-udɛ**	'to obtain, to get'
ⁿduɓɓi ⁿjuukki	'long doum palm'	**juut-udɛ**	'to be long'
yoŋki ᵐboŋki	'bad soul'	**bon-udɛ**	'to be bad'
yoŋki moɟjuki	'good soul'	**moɟj-udɛ**	'to be good'

The identical form **-ki** marking both the circumstantial word derivation and the subjective word formation and the absence of clearly related verb stems makes it difficult to decide on the derivation of the following words.

cayki / cayɗɛ	'tree with thorns: Acacia albida Delile'
yoŋki / yoŋkiiji	'soul'
ⁿdaŋki / danɗɛ	'hangar; wind-break'

7.2.12.5 THE SUFFIX FORM **-eefi**

Deverbative nouns denoting qualities containing a suffix **-eefi** also occur in the KI class. The morpheme **-ɛɛ-** (also occurring in combination with other class markers in participles) is also seen in combination with the form **ki** in the word **ᵐbeleeki ki** 'sweetness' in Maasina. The suffix **-eeki** occurs in other dialects as well. Zoubko (1980) gives the form **ⁿguleeki** 'heat, sweat', but she does not indicate the dialect in which this form occurs. The suffix form **-eefi** appears to be typical for the Maasina dialect.

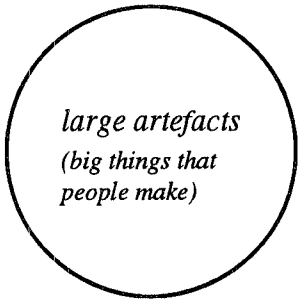
kaaɗ-eefi	'bitterness'	**haaɗ-udɛ**	'to be bitter'
hecc-eefi	'dampness'	**hecc-udɛ**	'to be fresh, wet'
kecc-eefi	'humidity, freshness, newness'	**hecc-udɛ**	'to be fresh, wet'
tedd-eefi	'heaviness, weight'	**tedd-udɛ**	'to be heavy'
ᵐbel-eefi	'sweetness'	**wɛl-dɛ**	'to be sweet, nice'
ⁿgul-eefi	'heat (of the body, sweat)'	**wul-dɛ**	'to be hot'
ᵐbul-eefi	'heat'	**wul-dɛ**	'to be hot'

The consonant [**f**] in this morpheme cannot be explained in terms of its alternation with the consonant [**k**], unless very particular phonological rules are established for this morpheme only. The alternation between [**h**] and [**k**] is regular. Inter vocalic weakening of [**k**] in a morpheme ***-eeki** may have resulted in [**h**] in a morpheme ***-eehi**. The consonant [**f**] has

become [**h**] in some opaque historical word derivations. The change from [**k**] to [**h**] to [**f**] or vice versa is not clear. The morpheme **-eefi** forming abstract nouns has to be considered as either a frozen morpheme or a morpheme **-eef-** combining regularly with the class suffix **-i** of the objective word derivation (grade A).

7.2.13 THE KA CLASS

There are not many nouns that take the concord of the KA class. Many nouns with a suffix of the KA class often use the concord of the 'O class. Words that are consistently referred to with the concord of the KA class are **kaasa** 'blanket' and **laana** 'boat'. These words are thought to be grouped in the KA class because their meanings can be said to revolve around the concept "large artefacts". Words describing different types of blankets can be grouped around the key word **kaasa** 'blanket', in the same way as a number of terms denoting types of garment. The following figure represents the content of words which always use the KA class concord.



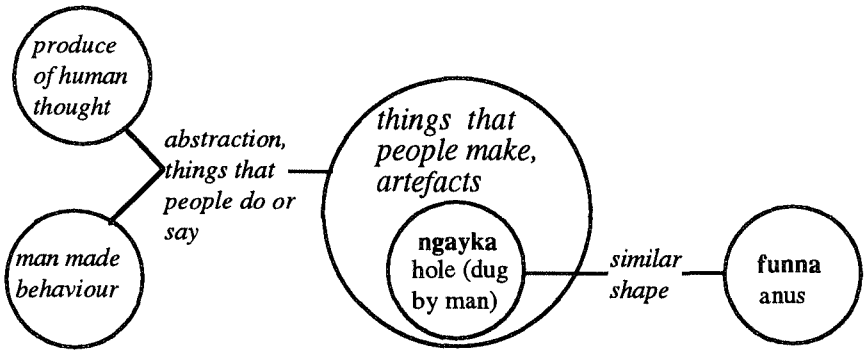
large artefacts

kaasa	blanket
laana	boat
saaya	gown

There are words with a suffix of the KA class which also sometimes use a concord of the KA class. They can be described as "things that people make, do, or say". Many words denoting small or large artefacts (things that people make) have a suffix of the KA class. Words and stories are grouped in the KA class because they are the produce of human thought, they are things that people say, i.e. produce verbally. The abstract nouns in the KA class which denote kinds of human behaviour are things that people do. These abstract nouns are derived from verbs and often they carry the meaning "manifestation of (the event expressed by that verb)". The word **funna** 'anus' is associated with the word **ⁿgayka** 'hole' which is a common euphemism for the anus.

All words in the KA class denote inanimate concepts. Many of the artefacts in the KA class are large. This feature "large" is also present in the NGA/BA class, denoting large animals. Historically these two classes may well have had a common origin. A nasal prefix denoting animacy added to the KA class marker has resulted in the NGA/BA class marker. The content of the original class has been split into the inanimate KA class and the animate NGA/BA class.

The different semantic subgroupings in the KA class are linked in a semantic network such as the one proposed in the following figure.



things that people make		*things that people say*	
ᵐbayla	forge	**filla**	long story
ⁿgayka	hole	**janta**	history
sira	tobacco	**taala**	tale
kafa	black paint for leather	**haala**	word
fina	black paint for eyes	**ⁿgɔɔⁿga**	truth
sɔyfa	sound	**ⁿgɔɗa**	taboo

big things that people make		*things that people do*	
laana	boat	**darja**	popularity
ⁿdiwɔɔwa	aeroplane	**hersa**	shame, reservedness
kaasa	blanket, woollen dress	**kɔrsa**	affection, love
malliiwa	blanket, six strips	**nafa**	usefulness
tudareewa	blanket, black with white stripes	**ⁿguyka**	theft
cɔjaaka	blanket, four colours	**ᵐbɔɔwka**	habit, custom
ⁿdaakaaka	blanket, four colour pattern	**kɔɔrka**	fast
tuuba	trousers	**ɗɔŋka**	thirst
sarra, sarla	long trousers		
saaya	gown, shirt	*similar shape as hole*	
		funna	anus

As for the grouping of words in the KA class according to their type of initial consonant, there are two kinds of nouns. The first kind, which shows alternation, takes a prenasalized initial consonant. Other nouns exhibit no alternation and may thus start with any consonant. The absence of initial consonant alternation can often be ascribed to the loan origin of that word. The suffixes of the KA class are given in the following table. Their meanings and distribution are discussed in the following sections.

grade A:	**-a**	objective word derivation
grade B:	**-wa**	associative word derivation
grade C:	**-ka**	circumstantial word derivation: "manifestation of"
grade D:	**-ka**	subjective word derivation

7.2.13.1 THE GRADE A SUFFIX FORM **-a**

The suffix form **-a** marks the objective word derivation. The definite marker is listed because it indicates which class concord can be used to refer to that noun. The definite

marker from either the KA class or the 'O class follows the noun. The following nouns denote objects and things.

kaas-a ka / kaasaaji	'the blanket, woollen blanket'
laan-a ka / laanaaji	'the boat'
kaf-a ka	'the black (to blacken leather)'
fin-a ka	'the black (to blacken eyes)'
fuun-a, funn-a ka / fuunaaji	'the anus'
saay-a ka / saayaaji	'the shirt, gown'
sarr-a ka / sarraaji	'the trousers'
gɔɔ^{n}g-a ʔɔ, ka	'the truth'

Nouns which are derived with a grade A suffix from verb stems denote either cognate unmarked objects of the related verb or the cognate state. Some nouns do occur with a prenasalized initial consonant, others do not.

haal-a ʔɔ, ka	'word, speech'	**haal-dɛ**	'to speak'
darj-a ʔɔ, ka	'popularity'	**darj-udɛ**	'to be(come) popular'
sɔyf-a ʔɔ, ka	'sound'	**soyf-udɛ**	'to make noise'
fill-a ʔɔ, ka	'story'	**fill-aadɛ**	'to recite, to narrate'
jant-a ʔɔ, ka	'history'	**jant-aadɛ**	'to tell'
hɛrs-a ʔɔ, ka	'shame'	**hers-udɛ**	'to be(come) shameful'
kɔrs-a ʔɔ, ka	'affection'	**hɔrs-udɛ**	'to be(come) adorable'
^{n}gɔɗ-a ʔɔ, ka	'taboo'	**wɔɗ-ɛɛ-dɛ**	'to be(come) banned'

A number of words in the list above are derived from verbs which are loan-words, but the derivation itself is quite regular: attaching the meaning of the KA class "man-made produce, artefacts, or human behaviour" to the cognate object derived from the related verb root by adding the regular suffix form **-a** of the KA class.

The following verbs never appear without an extension. Possibly the nouns are basic and the verbs are derived.

^{m}bayl-a ka	'forge'	**wayl-it-iddɛ**	'to transform'
naf-a ka	'usefulness'	**naw-t-ɔr-aadɛ**	'to use'
gɔɔ^{n}g-a ʔɔ	'truth'	**goon-ɗ-udɛ**	'to be(come) real'

The derivation of the word **^{m}bayl-a** 'forge' is semantically irregular. It is not an artefact as such, but rather the place where artefacts are made. A forge is the place where the blacksmith, who transforms metals, works. The verb **goon-ɗ-udɛ** 'to be(come) real' is derived from the nominal stem in the word **gɔɔ^{n}g-a ʔɔ** 'the truth' combined with the denominal extension **-ɗ-**.

Tioulenta (1991:203) suggests that the occurrence of the two concords **ʔɔ** and **ka** indicates an intermediate stage of fluctuation of the loan-words between the phase without a morphological class marker in the 'O class and the phase where the class marker is determined. He says that the word is classified in the KA class because the final vowel [**a**]

of the loan-word is interpreted as the class suffix of the KA class. My hypothesis is that morphological analogy is blocked when the meaning of the loan-word can not be linked to the meanings of the KA class.

sira, siraa ka	'the tobacco' < Mande
tuuba ka / tuubaaji	'the trousers' < Ar.

Indeed, a number of (mostly Arabic) loan-words have been integrated into this class. However, the KA class does contain more than only loan-words. Some of the words in the KA class are proper Fulfulde nouns and derivations from verbs, even if some of the verbs might be loan-words.

7.2.13.2 THE GRADE B SUFFIX FORM **-wa**

The suffix form **-wa** marking the associative word derivation in the KA class has the same distribution as the suffix form **-wa** of the BA/NGA class. It occurs after stems which are full nouns. These stems might be Fulfulde nouns or loan-words.

mallii-wa	'cover of six woven strips'
tudarɛɛ-wa	'black background with a few white stripes'

The stem **malli** could refer to the ancient Mali empire: this could have been a common type of blanket during that period? It is not clear where the stem in **tudarɛɛwa** comes from.

ⁿdiw-ɔɔ-wa	'aeroplane' (flying boat)	lit.: 'flying (one)'
ɓal-ɛɛ-wa	'black blanket with red stripes'	lit.: 'black (one)'

The two words above are adjectival forms whose meanings have become more specific. The same forms can also be found as modifiers. The formation of the agentive form **ⁿdiwɔɔwa** 'flying' and the adjective **ɓalɛɛwa** 'black' are further discussed in sections 8.1.3 and 8.1.4.

7.2.13.3 THE GRADE C SUFFIX FORM **-ka**

The suffix form **-ka** marks both the circumstantial and the subjective word derivation. Their forms cannot be distinguished. The circumstantial derivation adds the meaning "mode, manner" to the semantic associations of the marker of the KA class. In the following example the circumstantial extension **-ir-** in the stem indicates clearly that the noun has been derived using the circumstantial word derivation.

woodʃudɛ	'to be beautiful, to be good, to have good morals'
ᵐboodʃirka	'goodness (of morals and beauty)'

The circumstantial extension does not occur at the surface of a number of other nouns denoting manifestations of human behaviour linked to the meaning of the related verbs. Only the similarity in meaning ("manifestation of") and the suffix form **-ka** indicates that these words combine with grade C suffixes.

ᵐbɔɔw-ka ka	'habit'	**wɔɔw-dɛ**	'to be used to'
ⁿgay-ka ka	'hole'	**ʔas-udɛ**	'to dig'
kɔɔr-ka ka	'fast'	**hɔɔr-dɛ**	'to fast'

The following two examples show verb stems that are derived from the related noun stem which are expanded using the denominal extension. This indicates that the verbs are derived from the nominal stems, rather than vice versa.

ⁿguy-ka ka	'theft'	**wuj-j-udɛ**	'to steal'
ɗɔŋ-ka ka	'thirst'	**ɗom-ɗ-udɛ**	'to be(come) thirsty'

These deverbal abstract nouns with the suffix **-ka** always use the concord of the KA class as their agreement marker, they never use the concord of the 'O class. The words derived using the circumstantial word derivation also obey the rule that words in the KA class should have a consonant from the prenasalized series.

The etymology of the word **ⁿgay-ka** 'hole' is not clear. It is also not clear whether its suffix form **-ka** has to be analyzed as grade C or as grade D.

ʔasudɛ	'to dig'
gaytaadɛ	'to dig a bit deeper (to find water)'
ⁿgay-ka ka / gayɗɛ	'non-natural hole, dug by someone'
ⁿgaykaarɛ / ⁿgaykaajɛ	'non-natural hole, dug by someone'
gasol / gasi	'furrow, gully, trench'
ʔasirgal	'stick to dig with'

The word **ⁿgay-ka** 'hole' is derived from the verb **ʔasudɛ** which still alternates with a velar voiced consonant [**ʔ** : **g** : **ⁿg**] in the Fuuta Tooro dialect. This word denotes a hole that is dug by people and can therefore be associated with the KA class feature of "human artefacts". The suffix cannot mark the subjective word derivation because the hole does not dig itself, the word **ⁿgayka** 'hole' is not the subject of the verb **ʔasudɛ** 'to dig'. The objective word derivation would be a better candidate since a hole is the unmarked object or result of digging. The objective word derivation is indeed found in the word **gasol/gasi** 'furrow, gully, trench'. Possibly the word **ⁿgayka** 'hole' also describes 'the digging', in agreement with the function of grade C suffixes to form verbal nouns, such as the gerund (**-gol**) and the infinitive (**-dɛ**).

7.2.13.4 THE GRADE D SUFFIX FORM **-ka**

A suffix form **-ka** also occurs on a number of words which can be analyzed as participles describing the subject of the related verb stem. The morpheme **-aa-** indicates the passive voice and the completive aspect.

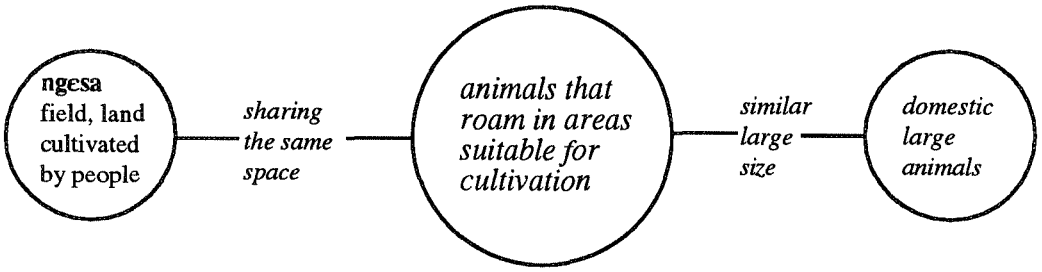
cɔj-aa-ka ka	'the four coloured (blanket)'
ⁿdaak-aa-ka ka	'the four coloured, with certain pattern (blanket)'

The hypothesis concerning the suffix grades of these two words is based on the morphological shape of the nouns and their meaning. Their stems combine with the passive voice marker **-aa-** which also occurs in participles. The paraphrase of these words as "that which" whereby the subject pronoun refers to a blanket is plausible. The related verbs and the precise etymology of these words are not known.

7.2.14 THE BA/NGA CLASS

The nouns in the BA/NGA class are marked by the use of the concord **ba** in the centre of Maasina. The concord **ⁿga** is used in the Fulfulde dialects of Gimmballa, Kunaari, and Haayre spoken on the periphery of Maasina. The geographical distribution of the concords **ba** and **ⁿga** is the same for the subject concord in participles. The noun class suffixes in the periphery do not differ from the suffixes in the centre of Maasina. The concord **ba** is not prenasalized like the concord markers of other classes with an initial voiced plosive consonant.

The nouns in the BA/NGA class describe big animals, except for the word **ⁿgɛsa** 'field, cultivated land'. The BA/NGA class contains both wild (elephant) and domesticated animals (sheep), harmless (antelope) and ferocious animals (crocodile). The hypothesis* for a semantic link between the large animals and the field in the BA/NGA class is the fact that these animals used to walk around in areas that are suitable for cultivation. Antelopes, giraffes, elephants, and buffaloes roam through the savannah where it is easier to clear the land for cultivation because there are fewer trees. The crocodile roams through the inundated river sides which is suitable for the cultivation of rice. In general, these animals are large. Other large domestic animals are linked to this class on the analogy of the large size of the animals that roam the savannah. The associations proposed for the BA/NGA class result in the following semantic network.



cultivated field		*large animals (wild)*		*large animals (domestic)*	
ⁿgɛsa	cultivated field	**nɔɔda**	crocodile	**ⁿgɛɛlɔɔba**	camel
		lɛlla, lɛwla	antelope	**ᵐbɛɛwa**	sheep
		kɔɔba	horse antelope	**ⁿgɔrba**	male donkey
		ⁿjamala	giraffe		
		ⁿduursa	zebra		
		ɲiiwa	elephant		
		ʔɛɛda	buffalo		

* Thanks to David Wilkins for his suggestions which led to the semantic link proposed here.

It was quite difficult to ask for the words for wild animals in Maasina. In Fuuta Tooro the word for 'crocodile' is listed by Oumar Ba (1977:275) among the words that are absolutely forbidden to be pronounced by all the people of Fuuta Tooro. Words like **ⁿjamala** 'giraffe', **ʔɛɛda** 'buffalo', **nɔɔda**, **ŋata** 'crocodile', and **ⁿduursa** 'zebra' were not known by most people. But it was easy to obtain in this class the word **ɲiiwa** 'elephant' and the names for the domestic animals like **ᵐbɛɛwa** 'sheep'. One reason could be that most of the consultants were sedentary. The advice "you should ask the people from the bush" was often given. Another reason is due to the rapid degradation of the environment, there is not much wildlife left. The word **ⁿduursa** 'zebra' is probably not well known because this animal does not live in Mali, the closest place where this animal can be found is in Cameroon.

The taboos on wild animals are probably also a reason for the difficulty in obtaining these words. Taboo might also be the reason for dialectal variation. The word for 'buffalo' is **ʔɛɛda** in Maasina and **ᵐbana** 'buffalo' in Fuuta Tooro (Ba 1977:75), the Ringimaaji dialect of Cameroon, and Sierra Leone. The word **ᵐbana** was given with the meaning 'black donkey' in Maasina. The same stem occurs in Maasina in the word **wanɛ** denoting a black cow, in the NGE class. The name **naggɛ laddɛ** 'cow of the bush, wild cow' was suggested in Tenenku. There is not much known about taboo phenomena in Fulfulde. It appears to be important for the classification of nouns and can explain the euphemistic etymologies of some taboo concepts. The subject of taboo is presently being studied by Souleyman Balde (personal communication). Hopefully his insights on taboo in the Fulaadu region in Senegal will soon reveal more about the taboo practices of the Fulbe and their reflection in language.

The suffix forms of the nouns in the BA/NGA class are identical to the suffix forms of the objective and associative word derivation of the KA class.

grade A:	**-a**	objective word derivation
grade B:	**-wa**	associative word derivation
grade C and D:	**-ba**	reinterpretation of the last syllable in words like **ⁿgɛlɔɔba** 'camel' as a new class marker which resulted in the creation of the BA class

The fact that the suffix **-ba** can always be interpreted as a stem final consonant [**b**] followed by the suffix form **-a** in nouns led to the hypothesis that the BA class is an innovation of Fulfulde.

7.2.14.1 RELATION BETWEEN THE BA AND THE KA CLASS

The word **ⁿgɛsa** 'field' denotes a plot of cultivated land. This word would actually fit better in the KA class where man-made artefacts and results of human activity are classified. The word **ⁿgɛsa** does indeed occur in the KA class in Aadamaawa (Noye 1989:134). The word **ⁿgɛsa** belongs to the BA class in Fuuta Tooro (Fagerberg-Diallo & Sy 1983:275). The occurrence of the word **ⁿgɛsa** in either the KA class or in the BA/NGA class indicates a close link between these two noun classes.

Mukarovsky (1963:79) concludes that the suffix of the KA class has been replaced by a suffix of the BA/NGA class in a number of nouns from his comparison between Fulfulde

and proto-Bantu noun classes. There are indeed a number of resemblances of the two classes. The predominant suffix allomorphs are **-a** and **-wa** and the initial consonant is prenasalized in both classes.

The only noun in the BA/NGA class that occurs in the KA class in other dialects is the word **ⁿgɛsa**. At first sight, this is a strange member of the BA/NGA class.

ⁿgɛs-a / gɛsɛ 'field, plot for cultivation'

There is a noticeable semantic difference between the KA class on the one hand and the BA/NGA class on the other hand. The BA/NGA class denotes animate concepts (animals) whilst the KA class denotes inanimate concepts. The replacement of the BA/NGA concord of the word **ⁿgɛsa** with that of the KA class concord in other dialects (Noye 1974:326) can be explained by the fact that this word disturbs the semantic classification of the BA/NGA class. The further semantic content of the BA/NGA class consists only of big animals and is strangely exceptionless. The semantic label of big animals suggests that Mukarovsky was perhaps right in stating that a nasal prefix (cognate with the nasal prefix of proto-Bantu class 9 that denotes animals) was attached to the suffixes of the KA class resulting in the suffix form **-ⁿga**. If so, then the BA/NGA class is an innovation. The form **ba** could have been derived from some nouns in the KA class that denoted animals. The last syllable of some animal names containing a stem final consonant [**b**] may have been reanalyzed as the new class suffix. The words that were models for the new class suffix **ba** were words like **ⁿgɛlɔɔba** 'camel', **ⁿgɔrba** 'male donkey' **kɔɔba** 'horse-antelope'. Possibly the resemblance between the last syllable of the latter words and the last syllable of the word **daaba ʔɔ** 'animal' also contributed to the innovation of the BA class suffix, even though the word **daaba** is a loan-word from Arabic in the 'O class.

The morphological integration of the word **daaba** 'animal' into the BA/NGA class in Aadamaawa by adding the suffix of this class to it in the word **dabbawa ⁿga** confirms the present semantic interpretation of this class (Klingenheben 1963:100). The BA/NGA class denoting big animals has received the augmentative meaning through semantic extension in the eastern dialects (but not in Maasina).

An argument for a relatively late introduction of the BA/NGA class is the absence of a prenasalized form of the concord. The concord **ba** does not combine with a nasal pronoun marker in the derivation. Phonologically, prenasalization of the pronoun **ba** is perfectly possible. Perhaps the innovative development of the concord **ba** has to be placed historically after the nasal pronoun marker ***n** marking the subject and object concord was petrified. Another argument for a recent creation of the BA/NGA class is the existence of different forms of the concord of this animal class in the different dialects. The concord has the form **ba**, **ᵐba**, or **ⁿga** in the different dialects of Fulfulde. There is actually only one word which can synchronically be analyzed as having a plosive initial suffix form **ba**: **ⁿgɛlɔɔ-ba / geloo-ɗi**. Historically, there are good arguments for the analysis of the [**b**] in this word as a stem final consonant. This argument is further developed in section 7.2.14.4 on the **-ba** suffix below.

7.2.14.2 THE GRADE A SUFFIX FORM **-a**

The suffix form **-a** marks the objective word derivation. It combines with nominal stems. This form is the most frequently occurring form of the suffix.

ɲiiw-a / ɲiibi	'elephant'
lɛwl-a / lewli	'hind'
nɔɔd-a / noodi	'crocodile, small species'
ⁿjamal-a / jamali	'giraffe'
ⁿduurs-a	'zebra'
mɔl-a / moli	'donkey's foal, donkey's filly'
ɓɔt-a / ɓoti	'young goat, kid'
ⁿgɛs-a / gɛsɛ	'field'
kɔɔb-a / koobi	'antelope'
gɔrb-a, ⁿgɔrb-a / gorbi	'donkey, male'

The word for crocodile could be derived from the verb **ŋatudɛ** 'to bite'. Semantically this is a problematic derivation: a crocodile is usually the subject of biting, not the object.

ŋata / ŋataaji 'crocodile, big species' **ŋatudɛ** 'to bite'

The hypothesis is that the BA/NGA class is a later innovation, a split off from the KA class. If this hypothesis is correct, then the vowel initial **-a** suffixes of both the KA and the BA/NGA class are historically identical. Synchronically however, the suffix forms of the two classes are treated as separate forms.

7.2.14.3 THE GRADE B SUFFIX FORM **-wa**

The suffix form **-wa** occurs after stems that are full nouns.

ᵐbɛɛ-wa / bey	(she)goat'
dakii-wa, ⁿdakiiwa / dakiiji	'donkey'
tɛfɛɛ-wa / tefeeji	'donkey, she-ass'

The suffix form **-wa** occurs in a few words only. The suffix form **-wa** is a composite form: the morpheme ***ɥ** combined with the class suffix **-a**. The form is identical to the suffix **-wa** occurring in the KA class. The three nouns should be derived from full nouns ***tɛfɛ**, ***daki**, and ***bɛʔ** on the analogy of other words formed with the associative marker. These stems must have been either loan-words or complete Fulfulde words. The word for goat is possibly formed using the onomatopoeic word ***bɛʔ** for the sound of this animal as the stem.

7.2.14.4 THE SUFFIX FORM **-ba**

The word for antelope is analyzed as having a stem final consonant [**b**]. In theory, the word could also be interpreted as a vowel final stem combining with the suffix allomorph **ba**.

gɔrba, ⁿgɔrba / gorbi	'donkey, male'
kɔɔba / koobi	'antelope'

This option is not chosen given the predominant CV(V)C structure for stems in Fulfulde and the occurrence of the [**b**] in the plural. If the word **ⁿgɔrba** is derived from the adjectival stem **wɔr-**, the suffix **-ba** in the word **ⁿgɔrba** 'male ass' is probably chosen on analogy with the irregular formation of the word **gɔr-kɔ** 'man' (male + person + old possessive suffix).

***wɔr-**	'male' (adjective)
gɔr-kɔ / wɔr-ɓɛ	'man'
ⁿgɔr-ba / gorb-i	'male ass'
wɔr-ɗ-inⁿdɛ	'to be male, masculine, strong'
wɔrwɔr-dɛ	'to be male, masculine, strong' (show off rather than be?)

The verbs **wɔr-ɗ-inⁿdɛ** and **wɔrwɔr-dɛ** are derived from the adjectival stem ***wɔr-**. The plural **gorb-i** indicates that the [**b**] has to be analyzed synchronically as stem final. Thus the suffix form **-ba** does occur in one word only.

ⁿgɛɛlɔɔba / geeloodi	'camel, dromedary'
ⁿgɛlɔɔba / geloodi	id.

The diminutive form of this word in Fuuta Tooro is **gelob-el/gelob-on** (Ba 1977:324). This formation suggests a possible analysis of the [**b**] as the final consonant of the stem. Similar forms like **geeloob-el/ngeeloob-on** and **gelob-el/ngelob-oy** exist in other dialects (Zoubko 1980:195-6). The vowel length alternation in the first syllable can be explained as a shortening of unstressed long vowels. The first long vowel in a sequence of two syllables with long vowels often shortens when it occurs in an unstressed syllable.

The reinterpretation of the stem final [**b**] as suffix initial becomes evident in the plural and diminutive forms of the word **ⁿgɛlɔɔ-ba** 'camel' which never shows a stem final [**b**] in Maasina. The plural form **geloo-ɗi** 'camels' occurs in all dialects. The diminutive forms **geloogel/gelookoy** 'little camel' in Maasina indicate that the stem is reinterpreted as vowel final. The present morphology of the word **ⁿgɛlɔɔba** in the different dialects shows that different interpretations of the boundary of the class suffix have occurred. The word for camel is possibly a loan-word from Berber: **alɣem** 'camel'. Metathesis of the sequence **lɣ** may explain similar phonological shapes for 'camel' in Wolof **geleem** and Serer **ɣeleem**.

Thus, the whole BA class appears to be a relatively late innovation. Its new semantic function is to distinguish animate nouns from inanimate nouns in the KA class. The actual form of the noun suffix **ba** is not found in the BA/NGA class, it only functions as a marker of a new class defined by the use of this concord. The suffix form **-ba** only occurs in forms that show agreement with words of this class, like adjectives and participles. The relatively late creation of the **ba** class suffix, explains why the subject concord of this class is not prenasalized. The late appearance of this class could perhaps also explain the different forms of the concords **ba**, **ⁿga**, **ᵐba** in the different Fulfulde dialects.

7.3 NON-COUNTABLE CLASSES

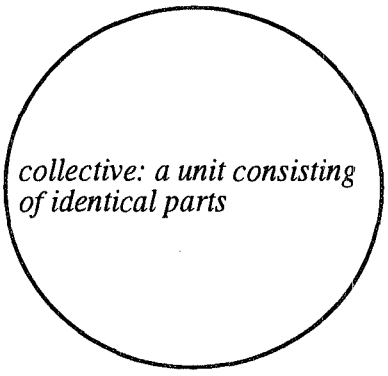
The nouns which occur in the non-countable noun classes denote mainly mass nouns ('DAM and KAL class), collectives (KO class), and indefinite words ('DUM class). The 'DUM class actually does not contain any independent nouns, it only occurs as a concord on modifiers to signal an unspecified thing or person. The concord of the 'DUM class can occur only with the numeral "one": **gootum** 'another, one other' in a countable context. However, the word **gootum** 'another' expresses indefiniteness rather than a singular number.

A few nouns in the non-countable noun classes do form a plural, although the majority of the words cannot form a plural because of semantic incompatibility. The word **hunukɔ** 'mouth' is paired off with the plural formation **kunuɗɛ** 'mouths'. The occurrence of the word in the KO class is explained by paraphrasing mouth as a collective of identical parts: the lips. The singular/plural pair **ⁿjar-am ɗam/jar-ɛ** 'drink' is the only word which can form a plural in the 'DAM class. Other possible singular/plural pairs are only indirectly related. The word **haakɔ** is often translated as 'leaf' although the word 'foliage' would be a better translation equivalent. The plural form **haakooji** 'leaves' is not the plural of **haakɔ** 'foliage' (cf. Zoubko 1980:211), but it is the plural of **haakowol** 'leaf'.

7.3.1 THE KO CLASS

The KO class is not a very productive class. Its class marker is not frequently used in the formation of verbal nouns or participles. It contains only a few words. Most nouns occurring in this class are the collective names for grasses and for types of foliage. The leaves are used as herbs in sauces and their names are polysemous, they denote both the name of the leaves and the name of the sauce in which they are used. A few names for body-parts and the word for clay and foam also occur in the KO class. The meaning of the collective which expresses the idea that several identical parts are considered to be a whole can also be found in the body parts which are in the KO class. They consist of several identical parts: the mouth has two lips, the pubic hair is made up of a collection of individual strands of hair, **ⁿgufɔ** 'foam on milk' is made up of many bubbles. The following figure shows the semantic content of the KO class.

huɗɔ	grass	**faykɔ**	pubic hair
ʔɔrɔ	leaves/sauce of baobab	**hunukɔ**	mouth
haakɔ	foliage	**ⁿguppɔ**	foreskin
ⁿgufɔ	foam	**ⁿdiiriiwɔ**	water-plant



The word **bɔɔkɔ** 'clay' is a loan-word from Bambara **bɔ́gɔ́**, it as a mass-noun rather than a collective. Perhaps the form of the last syllable motivated its membership of the KO class which is also non-countable. It is not clear whether the word **ⁿguppɔ** 'foreskin' is seen as a collective.

Most nouns in the KO class take the initial consonant of the stems from the basic series. The initial consonant of the basic series is mostly continuant. Some words like **ⁿgufɔ** 'foam' and **ⁿguppɔ** occur with an initial prenasalized consonant. The noun **bɔɔkɔ** 'mud' has an initial plosive consonant. The prenasalized and plosive consonant are the underlying initial consonants of the stems of these words. The following suffix forms occur in the KO class:

grade A:	**-ɔ**	objective word derivation
grade B:	**-wɔ**	associative word derivation
grade C:	**-kɔ**	circumstantial word derivation; only in **ɓɔkkɔ** 'baobab leaves' on analogy with **ɓokki** 'baobab'
grade D:	**-kɔ**	subjective word derivation

In the following section the distribution and meanings of these suffixes are further examined.

7.3.1.1 THE GRADE A SUFFIX FORM -ɔ

The suffix form -ɔ marks the objective word derivation. It occurs after simple nominal stems.

ʔɔr-ɔ	'leaves for sauce; sauce with leaves'
haak-ɔ	'leaves'
laal-ɔ	'leaves of tree (Lawsonia inermis?)'
ⁿguf-ɔ	'foam'
ⁿgupp-ɔ / ⁿguppooji	'foreskin'
bɔɔk-ɔ	'clay (used to paint things yellow)'

It can also be used to derive nouns form verb stems denoting the cognate or unmarked objects (or states) of that verb. The relation between the verb stem **fuɗ-** 'to sprout' and the nominal paradigm of the word grass **huɗ-ɔ** is based on the form **fuɗ-ɔ** 'grass' (Westermann 1909:41, Gaden 1908:53).

fuɗ-udɛ	'to sprout, to shoot up'
huɗ-ɔ	'grass' (collective)
kuɗ-ol	'blade of grass'
kuɗ-i	'blades of grass'
kuɗ-el	'small blade of grass'
kuɗ-oy	'small blades of grass'

Synchronically the alternation **f-h** is very rare, but it can explain the relation between these words historically. Klingenheben (1927:108-110) describes a historical phonological rule whereby the velar fricative [χ] changed to [**h**] which eventually could also change to [**f**]. Klingenheben shows some more cognate forms found in the Fulfulde dialects where [**h**] (alternating with [**k**]) corresponds to [**f**].

Klingenheben		cognate form in Maasina	elsewhere
no feewi	'many'	**ʔana heewi**	
fofuru	'knee'	**howru**	
furure	'half'		**hurure**
sheefu	'sheikh'	**seeku**	**sheehu**
haa	'untill'	**faa**	

The verb **fuɗudɛ** can also be used for the rising of the sun **naaⁿgɛ fuɗi** 'the sun rises, has appeared above the horizon'. The grass is the result of the verb to sprout, and can be seen as the unmarked object of the related verb.

7.3.1.2 THE GRADE B SUFFIX FORM **-wɔ**

The suffix form **-wɔ** occurs after nominal stems which are loan-words or full Fulfulde words.

ⁿdiirii-wɔ	'water-plant loved by cattle'
gamaraa-wɔ	'grass: most favoured kind'

The origin of the stems in the above words is not obvious. The stem ***ⁿdiiri** could be a noun in the NDI class describing a kind of flower.

7.3.1.3 THE GRADE C SUFFIX FORM **-kɔ**

The derivation of the word **ɓɔkkɔ** 'foliage of the baobab' follows the same (irregular) derivation as the tree name **ɓokki/ɓɔhɛ** 'baobab' taking a grade C suffix. The stem for the word **ɓɔkkɔ** is proposed to be ***ɓɔʔ**. The glottal stop and the consonant [**h**] are often found in cognate forms in different dialects, sometimes as variants of the same noun in the same dialect.

7.3.1.4 THE GRADE D SUFFIX FORM **-kɔ**

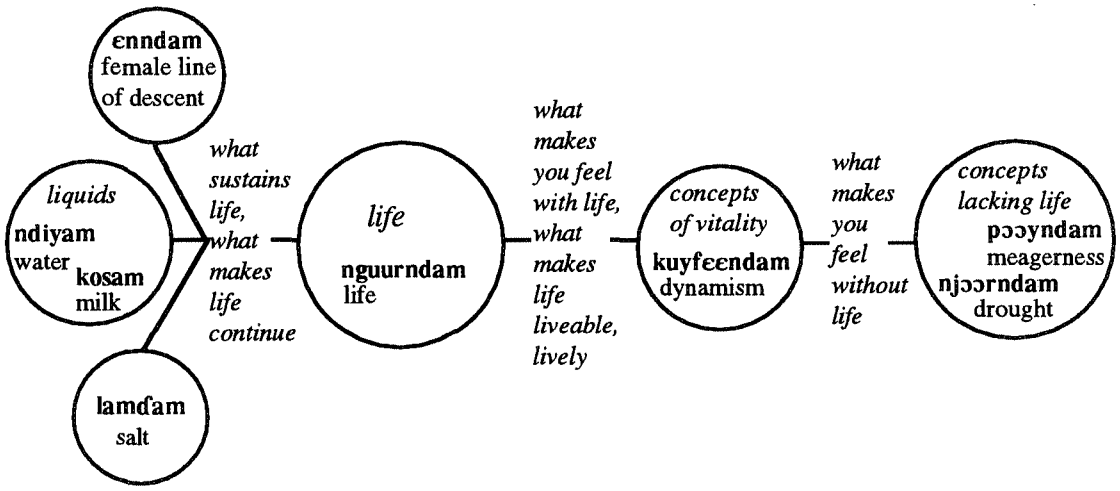
The suffix **-kɔ** in the words **faykɔ** 'pubic hair' and **hunukɔ / kunuɗɛ** 'mouth' are possibly grade D words, although it is difficult to distinguish between the homonymous grade C and D suffixes. These nouns are analyzed as grade D nouns because participles are often descriptive and euphemistic terms. The word **faykɔ** 'pubic hair' (also pronounced **faskɔ** in Maasina) could be a euphemistic term. A participle construction "that which" is morphologically possible. So far no verb with the stem **fas-** has been found.

The word **hunukɔ** (also pronounced **hunⁿdukɔ**) 'mouth' is based on a participle with the paraphrase "that which has surrounded". The participle is derived from the verb stem **hunⁿd-** 'encircle, surround' (Zoubko 1980:250). The first meaning of the word **hunukɔ** is mouth as part of the face. This meaning agrees with its occurrence in the KO class, the two

lips are identical parts forming one unit: the mouth. A second meaning of the word **hunukɔ** is the cavity inside the mouth that is surrounded by the lips in which food disappears. The Fulbe say that one should avoid looking at people when they are eating or crying. This avoidance could explain the need for an euphemistic term for the word **hunukɔ** 'mouth'.

7.3.2 THE 'DAM CLASS

The 'DAM class contains a number of nouns denoting liquids, some abstract nouns, and the word for salt. The word for water has a direct link to life in that it is needed to make life sustainable. The word **ʔɛnⁿdam** 'female line of descent' is something which sustains life, something which makes life continue. The same word **ʔɛnⁿdam** is also used for a very warm kind of friendship, it describes something which makes one feel alive, which makes life worth living. The concepts of milk and salt also have associations with vitality. Milk, salt, and water are things that cause life to be liveable. Other liquids are grouped in this class via the words for milk and water. The word **ⁿguurⁿdam** 'life' is a central term in the 'DAM class. Another abstract word is **kuyfɛɛⁿdam** 'dynamism, vitality' which describes a state of mind that makes one feel alive. A relation of antonymy between concepts relating to life and concepts which refer to the absence of vitality links these concepts to the 'DAM class. These are words like **pɔɔyⁿdam** 'meagerness' and **ⁿjɔɔrⁿdam** 'drought', both words are linked to the absence of water. The semantic network of the 'DAM class is given below.



liquids		*salt*		*what makes you feel with life*	
ⁿdiyam	water	**lamɗam**	salt	**ⁿguurⁿdam**	life
kɔsam	milk			**kayɓɛɛⁿdam**	cleverness
kaaɗam	sour milk	*what makes you feel without life*			
pɔkɔpɔkɔlam	muddy water	**kɔlⁿdam**	nudity	*what makes life continue*	
ɟiiɟam	blood	**ⁿjɔɔrⁿdam**	drought	**lamɗam**	salt
nɛbbam	butter, oil	**yɔɔrⁿdam**	hardness	**ⁿdiyam**	water
ⁿjaram	drink	**pɔɔyⁿdam**	meagerness	**kɔsam**	milk
				ʔɛnⁿdam	female line of descent

The following suffix forms occur in the 'DAM class. The suffix forms of grade B and grade C are not found on independent nouns, only on modifiers. The final bilabial nasal is generally not pronounced, instead, the word ends in the nasalized vowel [ã].

grade A:	**-am**	objective word derivation
grade B:	**-jam**	associative word derivation
grade C:	**-ɗam**	circumstantial word derivation
grade D:	**-ɗam**	subjective word derivation
atypical (grade A):	**-ʔam**	after a vowel
	-l-am	epenthetic [l]
	-ⁿd-am	in formation of abstract nouns

The only stem of a noun in the 'DAM class ending in a vowel is found with two different allomorphs in free variation: the allomorphs **-ʔam** and **-lam** in the word **pɔkɔpɔkɔʔam** also **pɔkɔpɔkɔlam** 'muddy, dirty water'. The word is related to the noun **poki** 'dirty person' and the verb **pɔkaadɛ** 'to make oneself dirty with mud or excrements'. The hypothesis is that the suffix form **-ʔam** in **pɔkɔpɔkɔʔam** 'muddy water' is in fact identical with the underlying form of the class suffix ***ʔam** of grade A. The allomorphs with an initial [l] in **pɔkɔpɔkɔlam** 'muddy water' is an innovation which arises by analogy to the reanalysis of the stem final [l] in some plurals as part of the suffix. This [l] also spreads to some diminutive and augmentative class suffixes.

7.3.2.1 THE GRADE A SUFFIX FORM **-am**

Most nouns in the 'DAM class use the suffix form **-am** of the class suffix. A number of them combine with simple nominal stems.

ⁿdiy-am	'water'
ⁿjiy-am	id.
ɟiiɟ-am	'blood'
nɛbb-am	'butter, oil'

The cognate object or state of the following verbs are liquids which explains the use of the grade A suffix form **-am** and their membership of the 'DAM class.

ʔil-am	'flooding, rising of water'	**ʔil-dɛ**	'to run (of water)'
kaaɗ-am	'sour milk'	**haaɗ-udɛ**	'to be sour'
ⁿjar-am	'a drink'	**yar-dɛ**	'to drink'
kɔs-am	'milk'	**hos-udɛ**	'to take a step'

The word **kɔsam** 'milk' could be derived from the verb **hosudɛ** 'to take a step'. The same stem is found in the ideophone **kɔsɛkɔsɛ** describing the sound of the walking feet of cows. Perhaps the word **kɔsam** 'milk' is originally a euphemistic term. Precious things or persons are very often represented by euphemistic terms to mislead evil spirits that might want to take the precious thing away.

7.3.2.2 THE GRADE D SUFFIX FORM **-ɗam**

A few nouns use the suffix form **-ɗam** for the 'DAM class suffix. They can be analyzed as participles derived from verbs.

ɓir-aa-ɗam	'milk'
ɗaan-ii-ɗam	'sour milk'
kettin-ɗam	'creamy milk'
lam-ɗam	'salt'
ʔɛn-ɗam	'female line of descent'

The word **ɓir-aa-ɗam** 'freshly milked milk' is derived from the verb **ɓir-dɛ** 'to milk'. The participle means literally: "that which is being milked". It is not certain whether the words for 'sour milk' and 'creamy milk' are independent nouns in Maasina because they often follow the word for milk as modifier.

The word (**ɓiraaɗam**) **ɗaan-ii-ɗam** 'sour milk' is derived from the middle voice verb **ɗaanaadɛ** 'to sleep'. The word for sour milk literally means "(milk) that has slept". It has become sour by keeping it overnight. The word (**ɓiraaɗam**) **kettin-ɗam** 'milk with a layer of cream on it' is probably derived from the verb **hettudɛ** 'to cut, to harvest' combined with the causative marker. Literally it is something like 'that which causes to cut away' (you take away the cream). The word for salt **lamɗam** is a taboo word that cannot be pronounced, especially not at night. After sunset you have to use the word **ᵐbɛlɗam** 'that which is tasty'. The word **lamɗam** could be derived from the verb **lammudɛ** 'to be salty', but the simplification of the long consonant to a short consonant is not common. More common is a vowel between the stem and the suffix which prevents ill-formed syllable structures. This vowel occurs in the adjective **lammuɗam** as in **ⁿdiyam lammuɗam** 'salt water' which is derived from a participle.

The word **ʔɛnɗam** 'female line of descent (via mother's milk)' is more difficult to analyze as a participle. Both forms **ʔɛnⁿdam** and **ʔɛnɗam** do occur with the meaning of 'relationship, in maternal line' in Maasina. The forms **ʔenɗam** and **ʔenⁿdam** also occur with the meanings 'mother's milk' next to the meaning of a relationship via the mother in other dialects. This meaning is extended in Haayre to any special and close relation, e.g. with friends. The word seems related to the noun **ʔenⁿdu/ʔenɗi** 'breast, udder', to the verb stem **ʔenⁿdudɛ** 'to be patient, to take care of children gently', and to the verb **ʔentudɛ** 'to wean, to educate'. There is no verb stem ***ʔɛn-** from which a participle **ʔɛnɗam** could be derived. The word **ʔɛnɗam** 'female line of descent' is also an exception in that it is not a mass noun but rather an abstract concept with an idea of continuity for which the suffix **-ⁿdam** seems more appropriate. Perhaps the form **ʔɛnɗam** is a reinterpretation of the noun **ʔɛnⁿdam** confirming the folk-etymology that this relationship is due to the mother's milk. The **-ɗam** suffix would group the noun with other liquids in this class.

7.3.2.3 THE SUFFIX FORM **-ⁿdam**

The suffix **-ⁿdam** occurs only on formations of abstract nouns in the 'DAM class. The stems of these derived abstract nouns come from verb stems. The formation of the nouns ending in the suffix **-ⁿdam** are similar to participles in that respect. The difference with participles is that the suffix does not refer back as subject pronoun to another noun. The morphemes

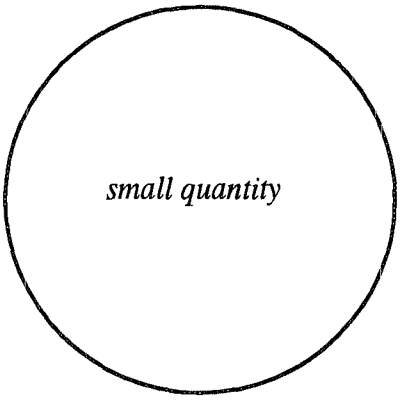
which occur between the stem and the suffix are different. The vowel **-ɛɛ-** does not occur as verbal marker in participles, but it does occur with the suffix **-ⁿdam**. The hypothesis is that this suffix combines the resultative extension **-ⁿd-** with the regular form **-am** which occurs after a consonant. The morpheme **-ⁿd-** occurs as an extension on some verb stems. The meaning given to the extension **-ⁿd-** (see also Mohamadou 1985:80) is the achievement of the idea expressed by the verb. The meaning of the verb stem **pɔɔy-ⁿd-** in the word **pɔɔyⁿdam** could be described as the achievement of being meagre.

pɔɔy-ⁿd-am	'meagerness'	**fooj-udɛ**	'to be meagre'
kayɓ-ɛɛ-ⁿd-am	'cleverness'	**hayɓ-udɛ**	'to be skilful'
kɔl-ⁿd-am	'nudity'	**hɔl-dɛ**	'to lack clothes'
ɓuuɓ-ⁿd-am	'cold'	**ɓuuɓ-udɛ**	'to be cold'
ⁿguur-ⁿd-am	'life'	**wuur-dɛ**	'to live'
ⁿjɔɔr-ⁿd-am	'drought'	**yɔɔr-dɛ**	'to be dry, hard'
yɔɔr-ⁿd-am	'hardness'	**yɔɔr-dɛ**	'to be dry, hard'
kuyf-u-ⁿd-am	'lightness'	**huyf-udɛ**	'to be light'
kuyf-ɛɛ-ⁿd-am	'lightness, dynamism'		

The suffix **-ⁿdam** is used to form abstract nouns. The other class suffixes of the 'DAM class describe mass nouns. This separate semantic function suggests an independent morphemic status for the **-ⁿd-** part of this suffix. It is unlikely that the suffix **-ⁿdam** is an allomorph of the suffix **-ɗam** used in participles which are derived from verb stems. The phonological change from [**ɗ**] to [**ⁿd**] or vice versa does not occur elsewhere in the language and it would be an abnormal alternation. The suffix **-ⁿdam** is considered to be derived from the resultative extension **-ⁿd-** combined with the regular suffix form **-am** of grade A.

7.3.3 THE KAL CLASS

All words that occur in the KAL class denote small quantities of the mass nouns which occur in the 'DAM class or the NDI class. The meaning of the class marker is "small quantity of" or "little bit of". This diminutive formation of mass nouns is not very productive. The derivation with the KAL class does not make the terms countable like the NDE class does cf. **tɔɓ-ɔ ⁿgɔ** 'the rain' and **tɔɓɓ-ɛrɛ ⁿdɛ** 'the drop (of rain)'. Only a few words which belong to the KAL class were collected during field work. The semantic content of the KAL class is represented in the following figure.



cɔnal	little bit of flour, powder	**ɲiiral**	little bit of (cooked) rice
gafal	little bit of millet	**pii^{n}dal**	small quantity of flowers
bɔsal	little bit of millet porridge	**lɛykal**	little bit of soil
kɔsal	small quantity of milk	**jaarɛkal**	little bit of sand
dihal	small quantity of water		

The initial consonant of words in the KAL class is taken from the plosive series. This initial plosive consonant form is regular for all words combining with suffixes which end in [l]. The possible suffix forms of the KAL class are given below.

grade A:	**-al**	objective word derivation
grade B:		no example
grade C:	**-kal**	circumstantial word derivation
grade D:	**-kal**	subjective word derivation

The absence of a suffix form **-wal** in nouns is in agreement with the absence of a continuant initial suffix form in the 'DAM class, from which the diminutive mass nouns are derived.

7.3.3.1 THE GRADE A SUFFIX FORM **-al**

The suffix form **-al** marking the objective word derivation occurs after simple nominal stems.

cɔn-al	'little bit of flour, powder'	**con-^{n}di**	'flour'
gaf-al	'little bit of millet'	**gaw-ri**	'millet'
bɔs-al	'little bit of millet porridge'	**^{m}boy-ri**	'porridge'
kɔs-al	'small quantity of milk'	**kɔs-am**	'milk'
dih-al	'small quantity of water'	**^{n}diy-am**	'water'
diy-al	id.		

The diminutive forms in the KAL class of the words **gawri** 'millet' and **^{m}boyri** 'millet porridge' show that these stems undergo a phonological rule which changes the voiceless continuant consonants [f] and [s] in syllable final position to voiced approximants. The underlying stem final voiceless continuant consonants appear in the mass noun diminutives **gafal** 'little bit of millet' and **bɔsal** 'little bit of millet porridge'. The words **gawri** 'millet' and **^{m}boyri** 'millet porridge' are widespread forms. Part of the class suffix of the noun in the NDI class is reanalyzed as the stem final consonant in the following two nouns.

ɲiir-al	'little bit of (cooked) rice'	**ɲii-ri**	'rice'
pii^{n}d-al	'small quantity of flowers'	**pii-^{n}di**	'flowers'

The stem of the word **ɲii-ri** 'cooked rice' is vowel final and therefore it takes the continuant initial suffix form **-ri**. The stem in the diminutive **ɲiir-al** 'small quantity of cooked rice' has the canonical shape CVVC. The initial consonant of the suffix **-ri** in **ɲii-ri** 'rice' is reinterpreted as the final consonant of the stem. The reanalyzed consonant final stem takes the phonologically predictable vowel initial suffix form of the KAL class as its suffix. Reanalysis must also have taken place in the paradigm of the word **pii^{n}di ^{n}di** 'the blossom,

flowers'. The suffix form **-i** does not occur in the NDI class. The underlying stem of **pii^{n}di** is proposed to be **fiin-**. The suffix **-ri** has become prenasalized suffix initially after a nasal final stem. The form ***piin^{n}di** has shortened the long prenasalized consonant to avoid a V:C: sequence. The metathesis which occurs when the same stem appears in the NGAL class, **piirnal**, **pii^{n}dal ^{n}gal** 'the flowering season', is perhaps due to an underlying sequence [**nr**], being the stem final [**n**] and the underlying suffix initial [**r**]. The word **pii^{n}di** gives rise to the following derivational paradigm.

pii^{n}di ^{n}di	'blossom, flowers'
pii^{n}diiji dì	'different sorts of flowers'
pii^{n}dal kal	'small quantity of flowers'
piirnal ^{n}gal	'flowering season'
pii^{n}dal ^{n}gal	'flowering season'
fii^{n}dudɛ	'to flower, to blossom'

The words in this paradigm have taken the prenasalized consonant [**^{n}d**], resulting from an assimilation of the stem final consonant [**n**] in **fiin-** 'to flower' to the suffix initial consonant in **-ri**, as their stem final consonant. Zoubko (1980:175) gives two verb stems **fiin-** and **fiind-** with the meaning 'to flower'. The related verb in Maasina is **fii^{n}dudɛ** 'to flower'. It is proposed that historically the form **fiin-** is the underlying form of the verb stem. The verb stem **fii^{n}dudɛ** is proposed to be derived from the noun **pii^{n}di** 'flowering', taking the canonical CVVC form as the stem.

7.3.3.2 THE GRADE C SUFFIX FORM **-kal**

The form of the suffix **-kal** represents both the circumstantial and the subjective word derivation. The type of word derivation which a word has undergone can only be deduced from its semantic etymology as indicated by other nominals in the same nominal paradigm. The mass noun diminutive **lɛykal** 'little soil' combines with the grade C suffix form **-kal** on analogy with the grade C word **leydi** 'earth, land, country'. The fact that this word occurs in the diminutive class KAL with the meaning 'soil' confirms the hypothesis that the basic meaning of **leydi** is connected with soil, or bare earth.

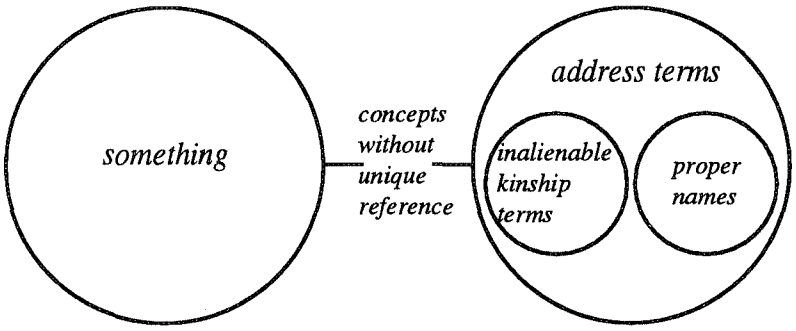
7.3.3.3 THE GRADE D SUFFIX FORM **-kal**

The mass noun diminutive **jaarɛ-kal** takes the form **-kal** on analogy with the subjective word derivation of the grade D word **^{n}jaaree-^{n}di** 'sand'. The long vowel **-ɛɛ-** which probably expresses the passive voice is shortened before a heavy syllable, i.e. the suffix with a CVC structure.

7.3.4 THE 'DUM CLASS

The 'DUM class denotes the unclassified, the unknown, the indefinite, the unspecified. The meaning of this class marker can be described as "something". It is used to describe things that are not specified and therefore cannot be attributed to one of the other classes with a particular semantic content. The 'DUM class suffix does not occur as a noun class suffix. The concord of the 'DUM class is only used on adjectives, demonstratives, pronouns, and participles. It is used as a concord referring to persons or things without a unique reference.

Things without reference can be events described in one or more sentences. Persons without unique reference are proper names and (inalienable) kinship terms which are used as address terms. The referent of a kinship term is not unique. The word **baaba** 'father' in itself does not specify who's father is indicated. The referent of a name like **kadiija** is not unique, because a name only means something if you and the speaker know the same **kadiija**. The uniqueness of kinship terms and proper names is contextual, it is not present in the names themselves. In that respect, names are like kinship terms. Both are especially used as address terms in a well-determined particular context. The semantic content of the group of words which use the concord of the 'DUM class is represented in the following figure.



The 'DUM class marker has different pronominal forms depending on whether it refers to a person or a thing. The pronoun **ɗum** 'something' is not the same as the personal pronoun **ɗum** 'he/she' which refers to the 3rd person singular, although the two forms are cognate. The class marker **ɗum** 'something, it' refers to unspecified objects, also to larger events that cannot be referred to with one of the other class markers. The personal pronoun **ɗum** 'he/she' is used to refer anaphorically to nouns which are either personal names or inalienable forms of a relationship term. The class concord of the 'DUM class denoting unspecified things follows the formation of other class concords. The personal pronoun **ɗum** follows the formation of first and second person pronominal forms.

	'something'	'he/she'
subject pronoun	**ɗum**	**ɗum** or Ø (zero)
object pronoun	**ɗum**	**ɗum**
inalienable possessive pronoun	—	**-um**
possessive pronoun	**majjum**	**mum, muuɗum**
independent pronoun	**kaɲⁿjum**	**kaɲum**

The word final nasal in the morpheme **ɗum** in Maasina is pronounced as [ŋ]. It is very often deleted and its only trace is the nasalization of the vowel yielding a pronunciation of **ɗum** as **ɗũ**. The form **ɗum** ending in a final labial [**m**] can only be found in very careful speech.

The initial consonant of the stems which combine with a suffix of the 'DUM class is taken from the plosive series. Anticipating the description of adjectives in section 8.1, the suffix forms of the concord of the 'DUM class are listed below.

grade A:	**-um**	objective word derivation
grade B:	**-jum**	associative word derivation
grade C:	**-ɗum**	circumstantial word derivation
grade D:	**-ɗum**	subjective word derivation

A few words seem to have a more specific translation. The meaning "something" of their class suffix is not immediately obvious. For example,

loowirɗum	'spoon; funnel'
ɓursirɗum	'stick used for removing seeds from cotton'

The claim is that "something" is present in the paraphrase of these words. The word **loowirɗum** 'spoon; funnel' is derived from the verb **loowudɛ** 'to put in a recipient'. The stem combines with the extension **-ir-** which is also used to express an instrumental meaning. The participle means "something which you use to put material in a recipient". The similarity between the different meanings 'spoon' and 'funnel' given by different consultants is that both a funnel and a spoon can be used to put (liquid or grain-like) material into a recipient. The literal paraphrase seems more accurate than the two translation equivalents which are rather possible interpretations. The paraphrase also supports the idea of "something" as the meaning of **ɗum**, because any such thing fits the description.

The word **ɓursirɗum** was translated as 'iron stick used for removing seeds from cotton' by one of the consultants. It is derived from the verb **ɓursudɛ** 'to remove seeds of cotton'. The literal translation of the word is "something used to remove seeds of cotton". The seeds are removed by a stick which is rolled over the cotton on a stone. The rolling stick is called **ɓursirdi** 'iron stick to remove cotton seeds' when it is made from iron. The word has the suffix of the NDI class on analogy with the word **ⁿjamⁿdi** 'iron' which is also in the NDI class. The stone on which the cotton is rolled is called **ɓursirdɛ** 'stone for removing cotton seeds', it has the suffix of the NDE class on analogy with the word **haayrɛ** 'stone' which is also in the NDE class. The stick with which the cotton seeds are removed can also be from a material other than iron. A more accurate translation of the word **ɓursirɗum** is "something with which one removes seeds of cotton", where the material from which this object is made is not specified.

The words **kaaɗaaɗum** and **kaaɗaaɗi** 'taboo' were given as a singular/plural pair. The existence of the form **kaaɗaaɗɛ** 'taboos' is an indication that these participle forms were not independent nouns, but rather referring to other nouns in the 'DE or 'DI class, or in case of the 'DUM class to something unspecified for class.

kaaɗaaɗum	'taboo'	(something forbidden)
kaaɗaaɗi	'taboos'	(forbidden animals)
kaaɗaaɗɛ	'taboos'	(forbidden things)

The words are all derived from the verb **haaɗudɛ** 'to stop' in the passive voice: **haaɗɛɛdɛ** 'to be stopped'. The verbal marker **-aa-** expresses passive voice and completive aspect. Thus the participle **kaaɗaaɗum** is literally "something which has been stopped". The

plural form **kaaɗaaɗi** in the 'DI class probably refers to certain **daabaaji** 'animals' which are taboo. The plural form **kaaɗaaɗɛ** refers to **kullɛ** 'things' which are taboo. So the 'DUM class does not occur in "proper" or "independent" nouns, but only as a concord to refer to indefinite and unclassified things.

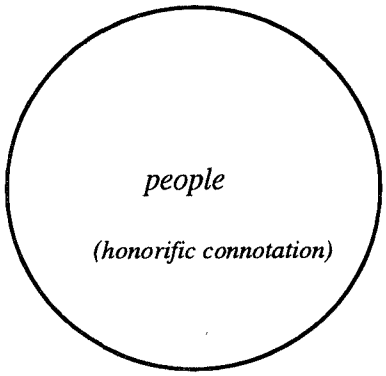
7.4 PLURAL CLASSES

A few nouns in the 'DI and 'DE classes are uncountable nouns which do not have a singular form. Some of these words do not have a clear plural meaning like **gɔllɛ** 'work' and **jilli** 'desire, love'. The class concord of these nouns shows a shift from the plural 'DE class to the singular 'O class. The word **gɔllɛ** 'work' can be referred to in Maasina with both concords of the 'O or 'DE class. The choice is determined by the age of the speaker. The historically correct concord **ɗɛ** is more used by older speakers, the semantically correct concord -ʔɔ (with regard to number) is more used by younger speakers. The 'O class is a singular class which can contain words without the suffix of the 'O class. The change from the 'DE class to the 'O class limits the content of these plural classes to the nouns which have an actual plural meaning.

First, the meaning and forms of each plural class are discussed. After this, the relation between the singular classes and the four plural classes is discussed in section 7.5.

7.4.1 THE 'BE CLASS

The 'BE class contains nouns denoting people. The suffix always expresses the semantic features [human] and [plural]. The semantic content of the 'BE class can be depicted as one set of nouns which share these semantic features as represented in the following figure.



The 'BE class is the class which is used as the plural of nouns with a suffix of the 'O class. Those words in the plural also refer to human beings, since all nouns with a suffix of the 'O class denote human beings. The 'BE class is also used to form the plural of loan-words which denote human beings which do not have a class suffix of the 'O class but only use the concord of the 'O class. The semantic feature [human] is valid for both the class suffix and the concord of the 'BE class. The suffix forms of the 'BE class are listed below.

grade A:	-ɓɛ	objective word derivation
grade B:	-ɓɛ	(preceded by vowel lengthening); associative word derivation
grade C:	-ɓɛ	(preceded by **-iraa-**); kinship; circumstantial word derivation
grade D:	-ɓɛ	(preceded by verbal markers); subjective word derivation
a-typical:	-ʔɛn	

The grade of a noun in the 'BE class can be determined through a comparison of forms within the paradigm. The grades are characterized by the presence of stem final vowel lengthening in grade B, the circumstantial marker in Grade C, and verbal markers in grade D. The grade A and grade D forms are alike when either the vowel -**u**- or no marker at all occurs between the stem and the class suffix. The following two singular/plural pairs contain the same stem and class suffix but differ in word derivation.

hoɗudɛ 'to settle'
objective word derivation (grade A):
kɔɗ-ɔ / hɔɓ-ɓɛ 'guest', "person being settled (by host)"
subjective word derivation (grade D):
kɔɗ-ɗɔ / hɔɓ-ɓɛ 'someone who has settled, settler', "person that settles (his family)"

The example is a clear minimal pair: the stem and the class marker are the same, only the grade marker differs. The example thus shows the meaning added by the type of word derivation (expressed by the grade marker).

The a-typical suffix form -**ʔɛn** is considered to be a suppletive form. This suffix form cannot be derived historically from the suffix form -**ɓɛ**. Both class suffixes belong to the 'BE class, because the concord **ɓɛ** refers to words ending either in -**ɓɛ** or in -**ʔɛn**. The class suffix -**ʔɛn** is possibly a later innovation because it is mainly used with loan-words. The plural formation -**ʔɛn** does not occur frequently in Maasina. The use of the suffix to refer to names of lineages ("own names") still reflects to its historical origin, i.e. the personal pronoun **ʔɛn** 'we (inclusive)'. The distribution of the class suffix -**ʔɛn** will be discussed in section 4.1.4.

The initial consonant of nouns which combine with the suffix -**ɓɛ** is taken from the basic series when alternation takes place in that stem. Stems which combine with the suffix -**ʔɛn** do not undergo initial consonant alternation.

7.4.1.1 THE GRADE A SUFFIX -ɓɛ

All nouns which take the suffix form -**ɔ** marking the objective word derivation in the singular take the suffix form -**ɓɛ** in the plural. The stems of these nouns can be nominal or verbal.

capaat-ɔ / safar-ɓɛ	'Mauritanian'		
bappaaɲ-ɔ / wappay-ɓɛ	'uncle: father's brother'		
janan-ɔ / janam-ɓɛ	'other, stranger'		
pull-ɔ / ful-ɓɛ	'Fulbe'	**full-**	'disperse'
nɛɛtar-ɔ / nɛɛtar-ɓɛ	'ill-bred person'	**nɛh-**	'educate'
giɗ-ɔ / yiɓ-ɓɛ	'friend, lover'	**yiɗ-**	'love'
kɔɗ-ɔ / hɔɓ-ɓɛ	'guest'	**hɔɗ-**	'settle'
ɲɛɛɲ-ɔ / ɲɛɛy-ɓɛ	'praise singer'	**ɲɛɛɲ-**	'flatter' [FT]
ŋɛɛɲ-ɔ / ŋɛɛy-ɓɛ	'praise singer'		

gujj-ɔ / wuy-ɓɛ	'thief'	**wujj-**	'steal'
labb-ɔ / law-ɓɛ	'woodworker'	**law-**	'work wood'
dɛbb-ɔ / rɛw-ɓɛ	'woman'	**rɛw-**	'obey, follow'
dim-ɔ / rim-ɓɛ	'nobleman, noblewoman'	**rim-**	'give birth' (verb)
		rim-	'thoroughbred' (adj.)

A vowel **-u-** can be inserted between the stem and the suffix when the underlying stem final consonant cannot precede the suffix **-ɓɛ**. The following examples are analyzed as grade A on analogy with their singular forms.

bayl-ɔ / wayl-u-ɓɛ	'blacksmith'	**wayl-**	'transform'
gaŋ-ɔ / waŋ-u-ɓɛ	'enemy'	**waŋ-**	'hate'
maab-ɔ / maab-uu-ɓɛ	'praise singer, weaver'		
kaab-ɔ / haab-uu-ɓɛ	'woman who once has given birth to a child'		
haa^{n}gɛ / kaab-i	'cow which once has delivered a calf'		

It is not clear whether the vowel **-u-** in these plural forms is the active voice marker **-u-**. If so, then it would be the only verbal marker which occurs in grade A nouns. This vowel **-u-** can be lengthened (it is not clear under which conditions), whereas the active voice marker **-u-** is never lengthened.

The last syllable happens to be **-jɔ** in the singular form of the following words. This is not the grade B suffix **-jɔ** (see section 7.2.1.2) but a stem final consonant [j] and the grade A suffix **-ɔ**.

bam^{m}baaj-ɔ / wam^{m}bay-ɓɛ	'praise singer'
jɔm^{m}baaj-ɔ / yɔm^{m}bay-ɓɛ	'newly wed'
diimaaj-ɔ / riimay-ɓɛ	'(ex-)slave'
surbaaj-ɔ / surbay-ɓɛ	'nubile girl'

A number of loan-words ending in a labial consonant have replaced the whole final syllable of the singular word by the suffix **-ɓɛ** in the plural .

ʔaaraabɔ / ʔaaraaɓɛ	'Arab'
taalibbɔ, taalibɔ / taaliiɓɛ	'Koran student'
burdaamɛ / burdaaɓɛ	'Tuareg'

The vowel **-ɔ** in the final syllable in the first two words might have triggered the reanalysis of the final syllable as the class suffix.

7.4.1.2 THE GRADE B SUFFIX -ɓɛ PRECEDED BY VOWEL LENGTHENING

The plural form of words which are derived using the associative word derivation (grade B) all show a long vowel preceding the suffix form **-ɓɛ**. This vowel length occurs when the plural suffix replaces the singular suffix of a noun also derived using the associative word derivation, and when the singular form is a full noun (mostly a loan-word) to which the plural suffix is added. This stem final vowel lengthening is typical for the associative word

derivation. Singular nouns derived using the suffix form **-jɔ** replace this suffix with the class suffix **-ɓɛ** in the plural.

hɔɔrɛɛjɔ / hɔɔrɛɛɓɛ	'chief, head, president'
nayɛɛjɔ / nayɛɛɓɛ	'old person'
ʔannabaajɔ / ʔannabaaɓɛ	'prophet'
bɛllaajɔ / bɛllaaɓɛ	'Bella'
gargasaajɔ / gargasaaɓɛ	'leather-worker'
julaajɔ / julaaɓɛ	'trader'
laabaajɔ / laabaaɓɛ	'beautiful person'
laarabuujɔ / laarabuuɓɛ	'Arab, Mauritanian'
mɛɛrɛɛjɔ / mɛɛrɛɛɓɛ	'good-for-nothing, layabout'
kayɛɛjɔ / kayɛɛɓɛ	'adolescent boy, 14-18 years old'

Agentive nouns which take the suffix form **-wɔ** of the 'O class in the singular take the class suffix **-ɓɛ** in the plural.

carɔɔwɔ / sarɔɔɓɛ	'judge'
jimɔɔwɔ / yimɔɔɓɛ	'singer'

A number of relationship terms without a noun suffix show stem final vowel lengthening in the plural. These relationship terms are also exceptional because they are not formed with the plural suffix **-iraaɓɛ** which is regular for relationship terms. The absence of initial consonant alternation in these terms can be explained by the absence of a class suffix of the 'O class in the singular that would trigger a plosive initial consonant alternation.

saara / saaraaɓɛ	'parents, family'
suka / sukaaɓɛ	'child'
surba / surbaaɓɛ	'nubile girl'

The final vowel of the stem is also lengthened when the suffix form **-ɓɛ** is added to loan-words which are not marked by a suffix of the 'O class in the singular.

Some particular stem final vowel changes are typical for loan-words with the class suffix **-ɓɛ**. Loan-words from Soninke often end in a final vowel **-ɛ**. This vowel alternates in the plural with a long vowel **-ɔɔ-** which is then followed by the plural class suffix **-ɓɛ**. This plural form **-ɔɔɓɛ** is composed of the singular human class marker **-ɔ** which is lengthened in the penultimate syllable in combination with the plural human class marker **-ɓɛ**. The plural formation **-ɔɔɓɛ** also appears in the plural of **tuubaaku**.

kanaŋkɛ / kanaŋkɔɔɓɛ	'chief, leader' < Soninke
tɔmɔttɛ / tɔmɔttɔɔɓɛ	'human being' < Soninke
tuubaaku / tuubaakɔɔɓɛ	'Frenchman, white person, European'

This stem final vowel alternation **ɛ/ɔɔ** does not occur in all Soninke loan-words. The human class suffix **-ɓɛ** is added to the stem when the loan-word has the regular (indigenous) suffix in the singular.

punɛɛjɔ / funɛɛɓɛ 'twins' < Soninke: **fune**

The word **funɛɛɓɛ** 'twins' is derived from the Soninke word **fune** 'twins' (Tioulenta 1991:348). The word has been integrated into the Fulfulde language both phonologically (initial consonant alternation) and morphologically (addition of class suffix). Its plural is formed by adding the class suffix **-ɓɛ** and by lengthening the vowel occurring in the penultimate syllable.

The plural formation **-ɔɔɓɛ** is added to the "loan-formation" based on the Soninke morpheme ***-ŋkɛ**. The loan-word formation ending in **-ŋkɛ** always takes **-ŋkɔɔɓɛ** as the plural suffix form. Perhaps the vowel [ɔ] in the plural formation **-ŋkɔɔɓɛ** is cognate with the suffix of the singular 'O class denoting persons.

ben^{n}diŋkɛ / ben^{n}diŋkɔɔɓɛ	'herdsman of a **ben^{n}di**'
fuutaŋkɛ / fuutaŋkɔɔɓɛ	'someone from Fuuta Tooro'
garciŋkɛ / garciŋkɔɔɓɛ	'young herdsman, that guards **garci**'
hawsaŋkɛ / hawsaŋkɔɔɓɛ	'Hausa person'
julaŋkɛ / julaŋkɔɔɓɛ	'trader'
kunaariŋkɛ / kunaariŋkɔɔɓɛ	'someone from Kunaari'
maasinaŋkɛ / maasinaŋkɔɔɓɛ	'someone from Maasina'
sɛɛnɔŋkɛ / sɛɛnɔŋkɔɔɓɛ	'someone from Seeno'
cuuɗiŋkɔɔɓɛ	'house-mate, living in the same **cuuɗi**'

Loan-words from Arabic and Berber (including Tamashek, the language of the Tuareg) take a plural formation where the final vowel in the singular is replaced by the suffix **-aaɓɛ**. The long vowel **-aa-** may have come from a final **-a** that occurs in many Arabic loan-words.

ʔalmaami / ʔalmamaaɓɛ	'imam, leader in prayer'
gariibu / garibaaɓɛ	'beggar'
^{n}jaatigi / ^{n}jaatigaaɓɛ	'host, hostess'
moodibɔ / moodibaaɓɛ	'marabout, Koran teacher'

The stem final vowel does not change in a number of words where the plural form is based on the full singular nouns.

sakkɛ / sakkɛɛɓɛ	'leather-worker'
tɔkara, tɔkɔra / tɔkɔraaɓɛ	'namesake'

The final vowel in the above examples is lengthened in the penultimate syllable before the class suffix **-ɓɛ**. This is the most regular plural formation of nouns derived using the associative derivation in the 'BE class.

7.4.1.3 THE GRADE C SUFFIX **-ɓɛ** PRECEDED BY **-iraa-**

Relationship terms are formed using the verbal extension **-ir-** and the passive completive marker **-aa-** followed by the suffix form **-ɗɔ**. The circumstantial marker **-ir-** is typical for grade C nouns. The fact that the diminutive forms take the grade C suffix **-gel** is another argument for analyzing kinship terms as grade C.

sakiikɛ / sakiraaɓɛ	'relative'
ɟeekiraaɗɔ / ɟeekiraaɓɛ	'elder sibling of partner'
baaɗiraaɗɔ / baaɗiraaɓɛ	'child of sibling of opposite sex'

The plural formation **-iraaɓɛ** is also added to relationship terms that do not end in the relationship participle formation **-iraaɗɔ** in the singular, e.g. in the term **sakiraaɓɛ** 'relatives'. The word **ɓiɗɗɔ/ɓiɓɓɛ** 'child' is also a kinship term, but it does not combine with the circumstantial marker and its augmentative and diminutive forms suggest that this word is in grade D, even though the stem is nominal, not verbal (see 7.2.1.4).

7.4.1.4 THE GRADE D SUFFIX **-ɓɛ** PRECEDED BY VERBAL MARKERS

Words denoting human beings which are derived using the subjective word derivation and have the suffix form **-ɗɔ** in the singular combine with the suffix form **-ɓɛ** in the plural. The suffix has the form and meaning of the subject concord in productive verbal participles. The words formed with the subjective word derivation are preceded by verbal markers. In the following examples the passive voice completive marker **-aa-** occurs before the grade D suffix.

cabbaaɗɔ / sabbaaɓɛ	'engaged woman'	**sabb-ɛɛdɛ**	'be engaged'

Many nouns in grade D are based on active voice verbs. The active voice marker **-u-** is often omitted.

ɲaw-ɗɔ / ɲawɓɛ	'sick person, patient'	**ɲaw-**	'be sick'
gɔn-ɗɔ / wɔmɓɛ	's.o. who is (at a place)'	**wɔn-**	'be (at a place)'
bum-ɗɔ, bunɗɔ / wumɓɛ	'blind person'	**wum-**	'be blind'
bɔn-ɗɔ / bɔmɓɛ	'bad person'	**bɔn-**	'be bad'
kɔɗ-ɗɔ / hɔɓɓɛ	's.o. who has settled'	**hɔɗ-**	'settle'
kaɗ-ɗɔ / hamɓɛ	'who has refused'	**haɗ-**	'refuse'

The insertion of the active voice marker **-u-** can prevent ill-formed syllables in nouns derived from active voice verbs. The following forms show that the active voice marker can be an alternative for the stem final consonant change.

dɔn-ɗɔ / rɔmɓɛ	'heir, heiress'	**rɔn-**	'inherit'
don-u-ɗɔ / ronu-ɓɛ	id.		
ɟɔy-ɗɔ / ɟɔy-ɓɛ	'clever, intelligent person'	**ɟɔɟ-**	'be clever'
ɟoɟ-u-ɗɔ / ɟoɟ-u-ɓɛ	id.		

baayɗɔ / waasuɓɛ	'have-not, can-not'	**waas-**	'lack'
baasuɗɔ	id.		
daɲuɓɛ, dayɓɛ	'rich people'	**daɲ-**	'have enough, harvest abundant'

In the following nouns the active voice marker occurs both in the plural and the singular form.

korsuɗɔ / horsuɓɛ	'sweetheart, lover'	**hɔrs-**	'cherish, love'
nattuɗɔ / nattuɓɛ	'lazy person'	**natt-**	'be lazy'
ŋarɗuɗɔ / ŋarɗuɓɛ	'beautiful person'	**ŋarɗ-**	'be beautiful'
baalduɗɔ / waalduɓɛ	'spouse'	**waal-d-**	'sleep together'
ʔaarnuɓɛ	'founders'	**ʔaarn-**	'found'
fuɗɗuɓɛ	'founders'	**fuɗɗ-**	'start'
cabbuɗɔ / sabbuɓɛ	'engaged man'	**sabb-**	'engage'
diisuɗɔ / r-, d-iisuɓɛ	'rich man'	**riis-**	'be rich'
tiiɗuɗɔ / tiiɗuɓɛ	'economical person; solid person'	**tiiɗ-**	'be hard'

7.4.1.5 THE SUFFIX FORM -ʔɛn

The atypical suffix **ʔɛn** attached to proper names has the meaning "and those who are with him/her" (Tioulenta 1991:188). It is a kind of group plural.

ʔaamadu-ʔɛn ⁿgar-ii
Aamadu-plural come-COMPL
'Aamadu and those who are with him have come.'

The hypothesis is that this plural formation with the "and those with him/her" meaning has evolved from the personal pronoun of a first person plural; i.e. the pronoun **ʔɛn** 'we (inclusive)'. The morpheme **ʔɛn** is found to denote group names (lineages) and is very often used in more eastern dialects. Arnott (n.d.) gives a large number of lineage names ending in -ʔɛn. The formation with the suffix -ʔɛn is not used to denote lineages in Maasina.

The morpheme **ʔɛn** used in the formation of names of clans and lineages can be paraphrased as 'we of X, we belonging to X'. The hypothesis is that a name like **rinⁿgimaajiʔɛn** is the "own name", meaning "we of the Ringimaaji" which can be paraphrased as "we of the cows that originate from Ringim (a place near Kano in Nigeria)". An "own name" is the name by which a group of people designates itself.

The use of the suffix -ʔɛn in Maasina is not as regular as in the Gombe dialect (Arnott 1970a:124) where the suffix -ɓɛ is said to be atypical for grade B stems (vowel final stems of full nouns or loan-words). There are a number of loan-words in Maasina that occur with both plural suffix forms -ʔɛn and -ɓɛ.

The following paradigm shows the semantic expansion from "we of" to the plural formation. All words in this paradigm are derivations of the Arabic loan-word **ʔaṣl** 'origin, source'. The formation can still clearly be interpreted as "we of the same ancestor' in the meaning of the word **ʔasiliʔɛn** 'descendants of the same ancestor'. The stem **layli** 'ancestor', with a singular and plural form, shows the interpretation of the suffix -ʔɛn as a

plain plural marker. The meaning of the two words derived from the same stem with the same suffix has shifted from "X and his people" to "the descendants of" to "the ancestors" to the plural of the ancestors themselves.

ʔasili-ʔɛn	'descendants of the same ancestor'
ʔasili / ʔasili-ʔɛn	'ancestor, great-great-grandparent'
layli / layli-ʔɛn	'ancestor, great-great-grandparent'
layliraadɔ / layliraaɓɛ	'ancestor, great-great-grandparent'

The further integration of this Arabic loan-word into Fulfulde is shown by the addition of the formation **-iraadɔ/-iraaɓɛ** that characterizes relationship terms.

The introduction of the suffix **-ʔɛn** seems to be a late innovation. It is frequent for the plural formation of loan-words referring to humans. The reinterpretation of this suffix as the regular suffix form of the 'BE class in the associative word derivation (grade B) occurs only in more eastern dialects like Gombe. The suffix form **-ʔɛn** as plain plural marker is still an exceptional suffix in Maasina. It occurs mainly with loan-words. Many loan-words also have the alternative formation with the regular suffix form **-ɓɛ**.

misikiina / misikiinaʔɛn, misikiimɓɛ	'poor person'
naafigɛ / naafigɛʔɛn, naafigɛɛɓɛ	'nuisance, hypocrite'
talka / talkaʔɛn, talkaaɓɛ	'poor person'
poki / pokiʔɛn, pokiiɓɛ	'dirty person'
dɔkkɔ / dɔkkɔʔɛn, hɔkkɔɔɓɛ	'generous person'
ʔalmaami / ʔalmaamiʔɛn, ʔalmamaaɓɛ	'imam'

The plural formation with the suffix **-ʔɛn** is found in compound words which denote human beings in Maasina.

jɔm-suudu / jɔm-suuduʔɛn	'partner'
jɔwrɔ / jɔwrɔʔɛn (*jɔm-wurɔ)	'leader of trekking routes who guards water and grazing rights'

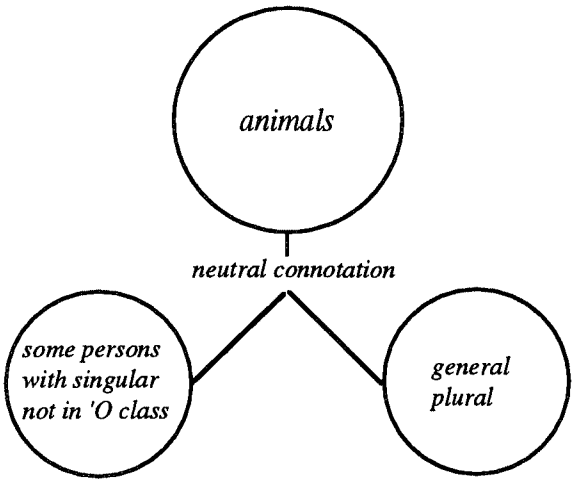
Only the plural formation with **-ʔɛn** is possible for a few loan-words, especially those from Arabic.

ʔalsilaamɛ / ʔalsilaamɛʔɛn	'Muslim, Moslem'
ʔannasaara / ʔannasaaraʔɛn	'Christian'
ʔamiiri / ʔamiiriʔɛn	'chief, village leader'
ʔatiimɛ / ʔatiimɛʔɛn, ʔatiimiʔɛn	'orphan'
dɔgɔtɔrɔ / dɔgɔtɔrɔʔɛn	'doctor'
sɛɛdɛ / sɛɛdɛʔɛn	'witness'

The words combining only with the suffix **-ʔɛn** are not numerous in Maasina. Most nouns that denote human beings take the suffix **-ɓɛ** as the form of their plural formation. This is true for both original Fulfulde nouns and loan-words.

7.4.2 THE 'DI CLASS

The suffix of the 'DI class forms plural nouns of all singular classes except for the NGAL class. The plural class is chosen on semantic grounds or on morphological grounds. The plural class of the singular classes KOL, NGOL, NDU, and NGU is morphologically determined. These genders combine exclusively with the plural 'DI class. Nevertheless, the hypothesis is that there is a semantic distinction at the base of the plural classes 'DE and 'DI. The 'DI class often forms the plural of nouns which are animate. The 'DI class also functions as a general plural form, especially in a certain morphological word derivation (grade B) where plural forms of loan-words and full nouns are formed by adding the plural suffix to the noun rather than by replacing it with the singular suffix. The semantic network of the 'DI class is represented in the following figure.



A semantic motivation for the choice of the plural class can be shown in the gender formation of singular classes which can combine with both plural classes 'DI and 'DE. The distribution of these two plural classes vis-à-vis one singular class is not arbitrary. The animacy content of the plural 'DI class can be demonstrated by the distribution of plural formation of the nouns in the NDI, NDE, and NGA/BA classes.

	animate: 'DI class as plural		inanimate: 'DE class as plural	
NGA/BA class	**ɲiiwa / ɲiibi**	'elephant'	**ⁿgɛsa / gɛsɛ**	'field'
	lɛwla / lewli	'antelope'		
NDI class	**ⁿgaari / gay**	'bull'	**ⁿjanⁿdi / jandɛ**	'iron, hour'
	ⁿdamⁿdi / ɗamɗi	'he-goat'	**ⁿgeeⁿdi / gɛllɛ**	'village'
	ᵐboomri / boomi	'maid'	**leydi / lɛyɗɛ**	'land'
NDE class	**binikaarɛ / binikaaji**	'pig'	**sagiirɛ / cagiijɛ**	'basket'
	dakiirɛ / dakiiji	'donkey'	**yit-ɛrɛ / git-ɛ**	'eye'

There are some nouns denoting animals that bite or sting which do not combine with the animate 'DI class in the plural. They are discussed in section 7.4.3 on the 'DE class.

The choice for the 'DI class is morphologically motivated when the plural is formed by the addition of a plural suffix to the singular noun (resulting in a double suffix in the plural). This formation can only take the suffix forms **-ji** and sometimes **-li**. The singular

class suffix is replaced by the plural class suffix in all other plural formations. The hypothesis is that the semantic animate/inanimate motivation for the plural class is being replaced by the productive **-ji** plural formation. A number of nouns in Maasina have two plural forms: one in the 'DE class replacing the singular suffix with the plural suffix and one in the 'DI class adding the plural suffix to the full singular noun. The more productive plural formation adding the suffix **-ji** is a later innovation.

	singular		semantically motivated 'DE plural	innovative general 'DI plural
KI class	**naaw-ki**	'armpit'	**naaw-lɛ**	**naawkii-ji**
NDI class	**maa-di**	'building'	**maa-lɛ**	**maadii-ji**
NDE class	**misii-dɛ**	'mosque'	**misii-ɗɛ**	**misiidee-ji**
NGO class	**maay-ɔ**	'river'	**maaj-ɛ**	**maayoo-ji**
	hɔg-gɔ	'corral'	**kɔw-lɛ**	**hoggoo-ji**
	fɔŋ-ⁿgɔ	'waterside'	**pɔɔm-lɛ**	**foŋⁿgoo-ji**
	lɛɛs-ɔ	'bed'	**lɛɛs-ɛ**	**leesoo-ji**

Dialectal comparison, too, shows that the plural 'DE class of some inanimate plural nouns has been replaced by the general additional plural **-ji** (sometimes **-li**).

	plural by additional **-ji** ('DI) in Maasina		plural by substitutional **-ɛ** ('DE) in other Fulfulde dialects
NGO class	**luum-ɔ / luumoo-ji**	'market'	**luum-ɔ / luuɓ-ɛ** [FT]
	yɛɛs-ɔ / yeesoo-ji	'face'	**yɛɛs-ɔ / gɛɛs-ɛ** [FT]
NGE class	**yiitɛ / yiiteeji, yiiteeli**	'fire'	**yiit-ɛ / giit-ɛ** [NE]
KA class	**laana / laanaaji**	'boat'	**laana / laaɗɛ** [FT]
	tuuba / tuubaaji	'trousers'	**tuuba / tuubɛ**
	janta / jantaaji	'story'	**janta / jantɛ**

All inanimate nouns combining with the productive plural 'DI class suffix are formed by the addition of the **-ji** or **-li** to the singular noun. The plural suffix **-ji** is added to the following full singular non-count nouns, adding the meaning of plurality and changing the non-count meaning into concrete countable. The interpretation of these plurals as "different kinds of X, types of X, X's of different people" depends on the meaning of the singular word. This is why the suffix **-ji** is often used to express diversity (Tioulenta 1991:186).

NDE class	**juuldɛ**	'religious feast'	**juuldeeji**	'different feasts'
	maaydɛ	'death'	**maaydeeji**	'deaths of different people'
	laddɛ	'bush'	**laddeeji**	'types of wilderness'
	safaarɛ	'modern medicine'	**safaareeji**	'medicines, kinds of'
	salaarɛ	'refusal'	**salaaji**	'refusals, kinds of'
NGO class	**maarɔ**	'rice'	**maarooji**	'different types of rice'
	miilɔ	'thought'	**miilooji**	'thoughts, different kinds'
	maasiibɔ	'disaster'	**maasiibooji**	'disasters, different kinds'

	sagɔ	'wish'	**sagooji**	'wishes, different kinds'
	tɔɓɔ	'rain'	**toɓooji**	'rains, different kinds'
	sippirɔ	'fight'	**sippirooji**	'fights, different kinds'
	sakɔrɔ	'daily market'	**sakorooji**	'kinds of daily markets'
NDI class	**ɲiiri**	'cooked rice'	**ɲiiriiji**	'kinds of cooked rice'
	ʔaawdi	'seed'	**ʔaawdiiji**	'kinds of seed'
	puuddi	'henna'	**puddiiji**	'kinds of henna'
	jawdi	'wealth'	**jawdiiji**	'kinds of wealth'
	ⁿjaareeⁿdi	'sand'	**ⁿjaareeⁿdiiji**	'kinds of sand'
KI class	**yonki**	'soul'	**yonkiiji**	'of different persons'
	keeci	'bottom'	**keeciiji**	'of different persons'

The general productive distribution of the plural suffix **-ji** developed from the neutral connotation of this plural class and its easy morphological formation: addition to the full singular word. The productive **-ji** plural suffix always forms the plural of words in the 'O class that are not human (cf. 7.4.2.2).

daaba / daabaaji	'animal'
mobel / mobelaaji	'car'

The animate meaning of the suffix **-ji** disappeared and this suffix became a general plural form for all nouns denoting concepts which are not human ('BE), not diminutive (KOY), and not augmentative ('DE).

The suffix forms that occur as noun class markers of the 'DI class are summarized in the table below.

grade A:	**-i**	objective word derivation
grade B:	**-ji**	associative word derivation
grade C:	**-di**	circumstantial word derivation
grade D:	**-di**	subjective word derivation
atypical suffix:	**-li**	hypothetical meaning: "a lot of"

Valette (1985) postulates another plural class suffix **bi** in the 'DI class which would be cognate with Proto-Bantu class 8 ***vi**. This proposal is not tenable because the consonant [**b**] belongs to the stem, or it is a result of a merger between a stem final labial consonant and *ʔ. Moreover, the semantic content of the Proto-Bantu class 8 which forms the plural of Proto-Bantu class 7 ***ki** does not match with the group of nouns combining with the proposed **-bi** suffix. Proto-Bantu class 8 groups the plural of utilitarian objects and by extension also despised objects and beings (Denny & Creider 1986:237). However, most nouns with the proposed suffix **-bi** denote animals. There are two (animate) nouns in Maasina where the last syllable has the form **-bi** which is analyzed by Valette as a plural suffix and where the [**b**] cannot be found in the surface form of the singular noun.

ɲalɛ / ɲalbi	'calf, heifer, cow'
haa^{n}gɛ / kaabi	'cow which once has delivered a calf'

A comparison of these words with other words based on the same stem shows a stem final labial consonant. A stem final labial consonant is found in the words **kaabɔ/haabuuɓɛ** 'woman who bore a child once'. It is the singular form **haa^{n}gɛ** which is difficult to explain. Perhaps the underlying form is ***haab-^{n}gɛ** where the subjective suffix of grade D was added due to reanalysis of a former nominal grade A stem. A stem final labial consonant is also found in the stem of the word ***ɲalw-**. A merger of the stem final consonant in ***ɲalw-** with the initial consonant of the suffix ***ʔi** could have resulted in the form **ɲalbi**. Mukarovsky (1962b:135) assumes that the word **ɲalɛ** 'calf' is derived from the verb stem **ɲalw-** which is **ɲawl-** 'to be noon' in Maasina. In this study words ending in a final syllable **-bi** which use the concord of the 'DI class are analyzed as grade A nouns with a stem final [**b**] followed by the grade A suffix **-i**.

7.4.2.1 THE GRADE A SUFFIX FORM -i

The suffix form **-i** marks the objective word formation of plural nouns derived from nominal or verbal stems.

dammul-ol kol / dammul-i	'the lamb, kid'
bal-ol ^{n}gol / bal-i dì	'the stroke of leaf of palm'
talk-uru ^{n}du / talk-i	'the leather amulet with Koran verse(s)'
ton^{n}-du ^{n}du / ton-i	'the lip'
ton-u ^{n}gu / ton-i	'the labia'
^{m}beel-u ʔɔ / beel-i dì	'the shadow, reflection'
waag-ɛ ^{n}gɛ / baag-i	'the cow with white sides'
sɔl-ɛ ^{n}gɛ / col-i	'the cow with small spots'
^{m}boom-ri ^{n}di / boom-i	'the young woman, sturdy and strong'
^{n}jamal-a ba / jamal-i	'the giraffe'
nɔɔd-a ba / nood-i	'the crocodile'
^{m}buub-u ʔɔ / buub-i	'the fly' (sg. suffix NGU class)
^{n}gur-u ʔɔ / gur-i	'the skin, leather' (sg. suffix NGU class)

The suffix form **-i** marks words which are derived from verbal roots that are semantically characterized as the cognate object (or default object) of the related verb. This is the case with the following examples.

bom-ol / bom-i	'dance'	**wom-udɛ**	'to dance'
ʔuj-iri / ʔuj-i	'ox'	**ʔuj-udɛ**	'to castrate'
daw-ol / daw-i	'journey'	**daw-udɛ**	'to travel'
diid-ol / diid-i	'line'	**diid-udɛ**	'to draw a line'
gas-ol / gas-i	'furrow'	**ʔas-udɛ**	'to dig'
lan^{n}d-al / lan^{n}d-i	'question'	**lan^{n}d-aadɛ**	'to ask'
^{n}dim-u / dim-i	'thoroughbred'	**rim-udɛ**	'to give birth'
bin^{n}d-ol / bin^{n}d-i	'writing'	**win^{n}d-udɛ**	'to write'

taal-ol / taal-i	'story'	**taal-aadɛ**	'to tell'
ceel-ol / ceel-i	'leather string'	**seel-udɛ**	'to cut in strips'

The above examples combine both in the singular and in the plural with the suffix forms that mark the objective derivation. This confirms Arnott's statement that in general one stem combines with one suffix grade (1970a:87). The initial glottal stop of the noun class suffix *-ʔi marking the objective word derivation has sometimes caused phonological changes resulting in stem final consonant alternation.

lefol / leppi	'woven strip'
sawru / cabbi	'stick'
ɲiiwa / ɲiibi	'elephant'
ɲuuɲu / ɲuuji	'ant'
wiigɛ / bijji	'calf 3 to 4 years, mature heifer'
naggɛ / nay, naʔi	'cow'
wowru / boɓi	'mortar'
faa^{m}buru / paaɓi	'frog, toad'
^{m}bɛɛwa / bey	'(she-)goat'
^{n}gaari / gay, gɛy	'bull; male calf'
^{m}boori / bohi	'bull: head (front) has other colour'
wɔhɛ / bohi	'cow: head (front) has other colour'

The phonological changes occur especially when the underlying stem final consonant is [+continuant]. Different phonological rules and different historical derivations account for the stem final consonant alternations that occur in the surface forms of the above examples which are discussed in section 3.2.

7.4.2.2 THE GRADE B SUFFIX FORM **-ji**

The suffix form **-ji** marks the associative word derivation. It is added to full nouns which are either loan-words or indigenous Fulfulde nouns. The plural suffix **-ji** added to the singular noun, often resulting in a double suffix in the plural, is typical for the morphology of loan-words (Tioulenta 1991:245). The loan-words are also characterized by the absence of initial consonant alternation which is usually triggered by a change of class. The associative derivation (grade B) is also present in the singular forms which are derived from full nouns when the plural suffix **-ji** replaces the singular class marker. This is shown in the examples below.

ɓiramaawɛ ^{n}gɛ / ɓiramaaji	'milk cow'
korboori ^{n}di / korbooji	'stud bull, breeding he-goat'
binikaarɛ / binikaaji	'swine, pig, boar'
dakiirɛ / dakiiji	'donkey'
haramaaru ^{n}du / karamaaji	'illegitimate child' < Ar.
haakowol ^{n}gol / haakooji	'leaf'
kokowol ^{n}gol / kookooji	'wall' < Bambara **kógó**
haramaaru ^{n}du / karamaaji	'illegitimate child' < Ar.

The suffix **-ji** can only replace the singular class suffix when the semantic associations (animate, plural) of the 'DI class are present or when the 'DI class is the morphological plural of the singular class (NGOL, NDU, NGU).

The suffix form **-ji** is often added to the full singular noun, instead of normal plural formations where the singular suffix is replaced by the plural suffix. This suffix **-ji** is added to the singular noun and it can be found as the plural of all singular classes except for the NGAL class. The suffix **-ji** is added to the full form of the singular noun in the following examples.

waajibi ʔɔ / waajibiiji	'the obligation' < Arabic
tamaati ʔɔ / tamaatiiji	'the tomato' < French
kamsel ⁿgel / kamselaaji	'the modern dress' < Fr. "camisole"
butel ⁿgel / butelaaji	'the bottle' < French "bouteille"
safaarɛ ⁿdɛ / safaareeji	'the medicine (modern)' < Berber
juuldɛ ⁿdɛ / juuldeeji	'the religious feast'
yoŋki ki / yoŋkiiji	'the soul'
keeci ki / keeciiji	'the hip'
tɔɓɔ ⁿgɔ / toɓooji	'the rain'
sakɔrɔ ⁿgɔ / sakorooji	'the daily market'
ʔilam / ʔilamaaji, ʔilemeeji	'the flooding'
ⁿguppɔ kɔ / ⁿguppooji	'the foreskin'
faykɔ kɔ / faykooji	'the pubic hair'
ŋata ba / ŋataaji	'the crocodile, big species'
daaba ba / daabaaji	'the animal'
kaasa ka / kaasaaji	'the blanket'
laana ka / laanaaji	'the boat'
maadi ⁿdi / maadiiji	'the building'
sayɛ ⁿgɛ / cayeeji	'the yellowish, brass coloured cow'
lamru ⁿdu / lamruuji	'the name giving feast'
kurtuⁿgu ʔɔ / kurtuⁿguuji	'the wedding' (sg. NGU suffix)
ⁿduŋⁿgu ʔɔ / ⁿduŋⁿguuji	'the rainy season' (sg. NGU suffix)

The occurrence of the 'DI class as plural of the word **kamsel** 'dress' and **butel** 'bottle' in the NGEL class is explained only by the loan-word origin of the stem. The suitability of the suffix form **-ji** as the plural marker of loan-words follows from the type of formation indicated by the associative word derivation: the stems which combine with **-ji** are in themselves already full words. This word structure is the same as the plural derivation of loan-words.

maaydɛ	'death'	**maaydeeji**	'deaths of different people'
jaɲⁿjɛrɛ	'manifestation'	**jaɲⁿjereeji**	'different manifestations'
piiⁿdi	'blossom'	**piiⁿdiiji**	'blossom of different trees'

The suffix **-ji** functions as the general plural of nouns which form their plural by the addition of a plural suffix to the singular noun. It can also occur on nouns which do not

have a suffix in the singular. This suffix also functions therefore as the plural of loan-words in the 'O class and of words that shifted from another Fulfulde class into the 'O class.

ʔaada / ʔaadaa-ji	'custom'	[Ar.]
kabaaru / kabaaruu-ji	'news'	[Ar.]
haal-a / haalaa-ji	'word'	*KA class; verb stem from Ar.
ᵐbat-a / ᵐbat-aa-ji	'large sack of cloth'	*KA class

The plural suffix has the form **-aaji** when a loan-word has a final consonant. The vowel [**a**] occurs as the final vowel in many (especially Arabic) loan-words. The vowel is inserted on analogy with the plural of other loan-words.

butel / butel-aaji	'bottle'
bitik, bitiki / bitik-aaji	'shop'

The suffix **-aaji** also replaces a final vowel **-ɛ** of a number of loan-words in the formation of their plural.

dɔllɔkkɛ / dɔllɔkk-aaji	'gown, long shirt'
dɔɔlɛ / dɔɔl-aaji	'power'
sɔgɔnɛ / sɔgɔn-aaji, sogonee-ji	'elbow' < Soninke **sogone**
ʔarkillɛ / ʔarkill-aaji, ʔarkillee-ji	'mosquito net' < Ar.

The plural form **-ji** occurs as an alternative in the plural of last two words which can also form their plural with **-aaji**. The form **-aaji** appears to be a more recent innovation.

The plural suffix **-ji** of the associative word formation is also used for the naming of cow lineages by their place of origin. According to Gallais (1984:77), names of cow herds are characterized by the suffix **-ji** when indicating affiliation. He gives a few examples of names of herds. They are given in phonological transcription. The correct vowel length in the following word could not be deduced with certainty from the French orthography for Fulfulde used by Gallais.

herd	people	place	(French spelling of place)
jafaraaji	**jafaraaɓɛ**	**Jafara**	(Diafara)
burguuji		**Burgu**	(Bourgou)
jalli	**jallufɛ**	**Wurɔ Jallufɛ**	(Ouro Diallubé)
jallali	**yallalɓɛ**	**Yuwaru**	(Youwarou)
cori	**coriŋkɔɔɓɛ**	**Tɔggɛrɛ Kumba**	(Toguéré Koumbé)

The last example is from my own field notes taken in Toggere Kumba. Herd names are only formed with the suffix **-ji** when the stem is a full noun which is mostly a place name. Herd names ending in **-ji** indicate geographic affiliation. The plural suffix **-i** occurs when the herd name indicates tribal/lineage affiliation, in which case the lineage names of the people are derived from the name of the cows.

7.4.2.3 THE GRADES C AND D SUFFIX FORM **-ɗi**

The suffix form **-ɗi** marks the subjective word derivation. It is identical in form to the subject pronoun of the 'DI class. It occurs in nouns which are etymologically derived from participles. The suffix **-ɗi** also forms the plural from nouns which are derived with the circumstantial word derivation.

grade D	**sal^{n}du ^{n}du / calɗi**	'the body / body parts'
	ɓoŋ^{n}gu ʔɔ / ɓowɗi	'the mosquito' (sg. suffix NGU class)
	^{n}gil^{n}gu ʔɔ / gilɗi	'the worm' (sg. suffix NGU class)
	carŋinii^{n}di ^{n}di / carŋiniiɗi	'the bull with horns pointing forwards'
	^{n}dan^{n}di ^{n}di / danɗi	'the he-goat'
	sootiŋ^{n}gɛ ^{n}gɛ / cootinɗi	'the cow heavy with calf'
	duɲcaa^{n}gɛ ^{n}gɛ / duɲcaaɗi	'the cow left in the village'
grade C	**jaŋ^{n}girdu ^{n}du / jaŋ^{n}girɗi**	'the school'
	reedu ^{n}du / deeɗi	'the belly'
	suudu ^{n}du / cuuɗi	'the house, room'

The following alternative plurals show that the occurrence of several grades in one nominal paradigm could be the result of a reanalysis of the suffix form. Both plural forms **toni** and **tonɗi** are found in Maasina (see section 7.2.2.1).

ton^{n}du / toni	'lip'
ton^{n}du / tonɗi	'lip'

A comparison of these words with the word **tonu** '(one) labia' shows that grade A is the original suffix grade of the stem ***tɔn-** 'lip, labia'. The replacement of the plural suffix **-i** by the suffix marking the subjective word derivation (grade D) is motivated by the resemblance of the surface form of the final syllable **^{n}du** to the subject pronoun in **ton^{n}du** 'lip'.

The alternative plurals of the word **taltalol** 'rein' combine either with the grade A suffix **-i** or with the grade D suffix **-ɗi**.

taltalol ^{n}gol / taltali	'the rein' (Zoubko 1980:464)
taltalol ^{n}gol / taltalɗi	'the rein' [Maasina]

The verb stem **taln-** 'fall with a horse' and the middle voice verb stem **taln-ɔɔ-** 'fall from a horse' can be derived from a noun stem. The verb stem **tall-** 'train a horse, hold a horse under control' which is attested in Maasina (Zoubko 1980:463) also seems related to this word. The reduplication of the stem indicates a weakening of the meaning of a verb stem. The reins are considered to control the horse, but not completely. The actual control is executed by the rider. This meaning "not completely" is added by the reduplication of the stem. The replacement of the suffix **-i** by the suffix **-ɗi** is perhaps motivated by the verbal character of the reduplicated stem. The word **taltalɗi** is perhaps reanalyzed as a participle: "those (ropes) that control the horse but not completely". The replacement of the original

plural suffix -i by the suffix -**ɗi** can also be motivated by the instrumental meaning of this nominalization.

The reanalysis of the last syllable **ba** in **ⁿgɛlɔɔba** as a new class marker has motivated the choice of the plural form -**ɗi** which alternates regularly with plosive initial suffix forms.

ⁿgɛlɔɔba ba / geloodi	'the camel, dromedary' [Maasina]
gelob-el ⁿgel / gelob-on	'the small camel' [Fuuta Tooro] (Ba 1977:324)

The regular form ***geloobi** was not encountered in the comparative data, but it is thought to be the historical form occurring before the innovation of the BA class took place. The diminutive formation **gelobel/gelobon** supports the hypothesis that the historical underlying stem of this word has a final [**b**].

The form **ɗi** occurs as the concord in productively derived participles. It can refer to all plural forms of the -**ɗi** class irrespective of the grade of the noun referred to.

7.4.2.4 THE SUFFIX FORM -**li**

The meaning of the suffix -**li** appears to be very similar to that of the suffix -**ji**. There is one paradigm where the suffix -**li** forms a plural "a large amount of" rather than "many concrete kinds or amounts of".

kenuu-li	'a lot of wind, storm'	**henⁿdu**	'spirit, wind'
ken-i	'spirits'		

The plural form **kenuuli** 'storm' describes "a lot of wind". It is the plural of the meaning 'wind' of the singular word **henⁿdu** 'spirit, wind'. The plural form of spirits is **keni**. These examples indicate a difference in meaning between the plural forms -**i** and -**li**. The morpheme -**l**- occurring in the suffix -**li** (and -**lɛ**) perhaps has some kind of augmentative meaning. The distribution of the suffix -**li** differs from that of the suffix -**ji**. The suffix form -**li** occurs as the plural suffix of nouns having their singular in all grades. The suffix -**ji** occurs only in grade B (with a full noun as the stem). The following examples are grade A nouns with the plural suffix -**li**.

ⁿgumar-di / guma-li	'bull without horns'
wumar-ɛ / guma-li	'cow without horns'
moor-ol / mool-li, moo-li	'braid, plait'
wuttul-du / guttul-li, guttul-i	'flank'

The word **moorol/moolli** 'plait' is the cognate object derived from the verb stem ***mɔɔr**- 'plait'. The morpheme -**ar**- in the stem ***wum-ar**- 'without horns' is the pejorative marker. There are a number of variant forms in the nominal paradigm of the stem ***wumar**- 'without horns' that show an irregular consonant alternation between [**l**] and [**r**].

wumar-ɛ / guma-li	'cow without horns'
wumal-ɛ / guma-li	'cow without horns'
ⁿgumar-di / guma-li	'bull without horns'
ⁿgumal-di / guma-li	'bull without horns'
ⁿgumar-di / gumar-ɗi	'bull without horns'

These forms are the result of reanalysis. The stem final ***r** has possibly merged with the initial consonant of the suffix in the plural. The sequence ***rl** results in **rr** elsewhere in the language. The sequence ***rʔ** can result in either a geminate stop [**dd**] or, when the loss of the glottal stop is completely lost, [**r**]. This paradigm poses a problem for the construction of the underlying form of the plural suffix.

The suffix **-li** can also be found in grade B added to the full form of the singular noun. Some plurals in grade B have alternative plurals. It is not clear whether these alternative plurals differ in meaning.

ceeɗuuli	'hot dry seasons'	**ceeɗu**	'hot dry season (March-June)'
cogguuli	'prices'	**coggu**	'price'
cumuuli	'fires'	**cumu**	'fire'
yiitee-ji	'fires'	**yiit-ɛ ⁿgɛ**	'fire'
yiitee-li	'fires'		
haɓoo-ji	'fights'	**haɓ-ɔ ⁿgɔ**	'fight'
haɓoo-li	'fights'		

The first three examples have shifted their class concord from the NGU class to the 'O class. The NGU class suffix is present in the singular and it is also present in the plural.

A small number of words in grade C use the plural suffix **-li**.

kol-li	'lutes'	**hod-du**	'lute'
gul-li	'navels'	**wud-du**	'navel, umbilicus'
kojju-li	'occipital holes'	**hojju-du**	'occipital hole, hole in the back of the head'
baaw-li	'sickles'	**waaw-du**	'sickle to harvest rice'

There are two words with a suffix **-li** which may be related to a verbal noun formed in grade C which is the infinitive.

jilli	'desire, love'	**yiddɛ**	'love; to love, like, want'
gilli	'friendship'		

These words are related to the verb stem **yiɗ-** of the verb **yiddɛ** 'to like, to want, to love'. The nominal infinitive **yiddɛ** 'to love' can also be translated as the noun 'love'. May be the words **jilli** 'desire, love' and **gilli** 'friendship' can be paraphrased as 'a large amount of liking, loving and/or wanting" thus confirming the hypothetical augmentative meaning of the morpheme **-l-**. The verb stem **yiɗ-** occurs with the initial consonant alternating with **j:ⁿj** in productive deverbal derivations. The translation equivalent of **yiɗ-** in these nouns is mostly 'to want, to love'.

jiɗaaɗɔ	'one who is loved'
ʔɛɓɛ ⁿjiɗi	'they love, want'
jilli	'love, desire'

The nouns derived from the verb stem **yiɗ-** that show the stem initial alternation [**g**, **ⁿg**] is less productive. The notion of friendship seems more dominant in these words.

giɗɔ	'friend, lover'
giɗiraaɗɔ	'friend'
giggol	'friendship' (the action of being friends)
giɗaaɗɔ	'personal name: beloved one, liked by many'
gilli	'friendship, empathy'

The suffix **-li** occurs frequently in grade D nouns. The following words are some examples of grade D nouns with the plural suffix **-li**.

ɗaanⁿdi, ɗaaⁿdi / ɗaalli	'trained carrying bull'	**ɗaat-**	'be soft, trained, easy'
ɓunⁿdu / ɓulli	'pit'	**ɓul-**	'flow (of water)'
feɗeeⁿdu / peɗeeli	'finger'	**fɛɗ-**	'fasten buttons'
fooⁿdu / pooli	'bird'		
(ɓanⁿdu) / ɓalli	'vaginas'		
suuⁿdu / cuuli	'jackal'		
weeⁿdu / beeli	'lake, pond'		
faaⁿdu / paali	'gourd, fruit of calabash'		
siiⁿgɛ / ciili	'cow of a certain colour'		
yeeⁿdu / jeeli	'ant-eater'		

Some nouns can be interpreted as subjects of the verb stem. Other nouns are classified under the subjective word derivation because of the similarity in morphological structure between these words and participles. The stems of nouns in the subjective word derivation often contain verbal markers such as **-u-** (active completive) or **-aa-** (passive completive). The words which describe noises are a particular group of nouns in the subjective word derivation that always use the plural **-li** which is preceded by the passive completive marker **-aa-**.

holɓuⁿdu / kolɓuli	'ankle'		
soɓɓuⁿdu / coɓɓuli	'corner'		
sukuⁿdu / cukuli	'head-dress'		
wutaaⁿdu / butaali	'cob of millet'		
wuugaaⁿdu / buugaali	'pigeon, dove'		
gidaaⁿgɔ / gidaali	'thunder, rumbling of thunder'	**gid-**	'thunder'
hijaaⁿgɔ / kijaali	'neighing, sound of a horse'	**hij-**	'neigh'
ʔillaáⁿgɔ / ʔillaali	'sneeze, sneezing'	**ʔill-**	'sneeze'
wuttaaⁿgɔ / guttaali	'whistling, flute'	**wutt-**	'whistle'
jɔwtaaⁿgɔ / jɔwtaali	'greeting'	**jɔwt-**	'greet'

wɔfaaⁿgɔ / gɔfaali	'bark'	**wɔf-**	'bark'
ʔuumaaⁿgɔ / ʔuumaali	'groan, sigh'	**ʔuum-**	'groan, sigh'
fɛɲaaⁿgɔ / pɛɲaali	'lightning, lightning stroke'	**fɛɲ-**	'flash, lighten'
wullaaⁿdu / gullaali	'penetrating cry'	**wull-**	'cry (of children)'

The fact that the plural of nouns describing noises is formed with the suffix **-li** may be motivated by the possible augmentative meaning of the [i] in **-li**. Many noises form an amalgamation of noises, a lot of noise, a large amount of noise.

The following examples show alternative plurals with the suffix **-li** and with the suffix **-ɗi** that occur in both the circumstantial and the subjective word derivation.

daaⁿgol / daalli, daaɗi	'rope with which calves are tied down'
caaⁿgol / caali, caanɗi	'stream'
saafaaⁿdu / caafaali, caafaaɗi	'jackal; leopard'

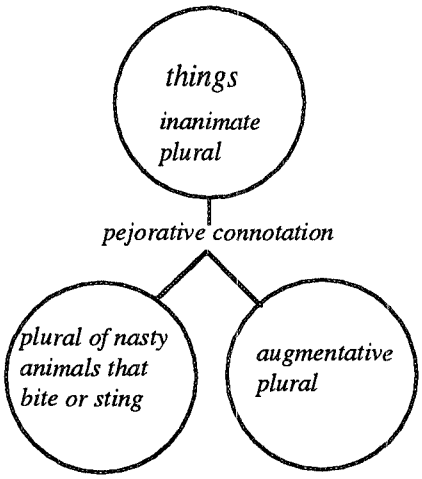
The plural form with the suffix **-ɗi** may be a reanalyzed regular grade D formation. Another grade D word ending in **-li** is the plural of **jaaⁿgol** 'cold'.

jaaⁿgol / jaali, jaaⁿgooli 'cold' < **jaaⁿgudɛ** 'to be cold'

The suffix **-li** in **jaaⁿgooli** has been added to the full singular noun **jaaⁿgol** 'cold'. This plural formation is atypical for consonant final stems.

7.4.3 THE 'DE CLASS

Several meanings can be attributed to the nouns in the 'DE class. The 'DE class can express a plural, an augmentative, a pejorative and an inanimate meaning. All these meanings are not always present in each word formed with a suffix of the 'DE class. The semantic network of the 'DE class is represented in the following figure.



The augmentative class NGAL always forms its plural with the 'DE class, this is because of the augmentative meaning of the plural class 'DE. This augmentative meaning seems more important than its inanimate meaning in the formation of plurals. All the big birds that have

their singular in the NGAL class combine in the plural with a suffix of the 'DE class despite the fact that they are animate. The use of the 'DE class suffix as the plural for inanimate nouns has already been demonstrated in the distribution of the suffix classes 'DE and 'DI (cf. section 7.4.2). In this section, an explanation is given for a number of nouns which combine with the plural 'DE class even though there is an animate semantic component in their semantic structure. The following nouns denoting animals form their plural in the 'DE class.

NDE class:	**saŋaldɛ / caŋalɛ, caŋaldɛ**	'porcupine'
	wɔjɛrɛ / bɔjɛ	'hare'
	yaarɛ / jahɛ	'scorpion'
	giireɛrɛ / giireɛjɛ	'animal similar to a ground squirrel'
	huuŋaarɛ / kuuŋaajɛ	'tortoise'
	ʔamrɛ / ʔamɛ	'water tortoise'
	— / kɔhɔɔdɛ	'beetle which destroys millet'
	fiŋaarɛ / piŋaajɛ	'captain fish (Lates niloticus)'
NDI class:	**ᵐboddi / bɔllɛ**	'snake'
	pallaaⁿdi / pallaadɛ	'lizard'

The hypothesis is that the animals which do not take the animate plural 'DI class take the inanimate 'DE class because of their pejorative connotations. All these animals can cause nasty stings or bites which hurt people or cattle or destroy harvests.

The diminutive NGEL/KOY and the augmentative NGAL/'DE classes have pejorative connotations. Like the diminutive, the augmentative has a pejorative meaning. Anything that is larger or smaller than its normal size is out of its normal proportions. This abnormality is a negative quality which accounts for the pejorative connotation. The pejorative connotation of the augmentative plural 'DE class also involves some connotations of danger. The meaning of largeness indicates perhaps that the pejorative item in question should not be underestimated.

The pejorative connotation which motivates the choice of the augmentative plural 'DE class in the above examples does not clash with the fact that the 'DI class is the plural of animate nouns. It only proves that the augmentative meaning and the related pejorative meaning of a noun are a stronger semantic motivation for the choice of the plural class. These two features override the animacy feature.

The word **ᵐboddi/bɔllɛ** 'snake' is an animate noun that has its plural in the 'DE class because people think of it as a nasty and biting animal. The word **ᵐboddi** 'snake' is a taboo word. Consultants never gave me this word for snake. Instead, they gave the expression **ɓoggol leydi** 'snake' which literally means 'rope of the earth'. The word **ᵐboddi/bɔllɛ** is used by a praise singer in the story of Sillamakka and Pulloori (Seydou 1972:84).

The word for lizard also has its plural in the 'DE class in Maasina, but it occurs in the animate plural 'DI class in other dialects. Even its singular class can differ in other Fulfulde dialects.

fallaa^{n}du / pallaaɗi	[FT]
pallaa^{n}du / pallaaɗi	[V]
pallaa^{n}di / pallaaɗɛ	[M, NE]
pallaa^{n}gal / pallaaɗɛ	no dialect indicated (Zoubko 1980:395)

The word **fallaa^{n}du** 'lizard' is in the NDU class with other animals connected with the house in the Fuuta Tooro dialect. It takes the regular animate plural 'DI class. The dialect with the forms **pallaa^{n}gal/pallaaɗɛ** 'lizard' takes the plural 'DE class because of the singular augmentative NGAL class. The lizard is only found in the NDI/'DE class in Maasina [M] and Eastern Niger [NE]. It would be interesting to see how people perceive the lizard in the different dialect areas to see whether there is a correlation between the class and the perception of this animal.

Although the 'DE class is the plural of inanimate nouns, some inanimate nouns combine with the suffix **-ji** of the 'DI class. These exceptions can be explained by the fact that the suffix **-ji**, which is added to the full singular noun, has become a generalized plural for both animate and inanimate nouns (see section 7.4.2.2).

There are also a number of nouns that are not related to any singular noun where the plural meaning of the 'DE class is not immediately obvious. For this reason some of these nouns are also found using the concord of the 'O class.

bɛɛtɛ	'morning'	**wɛɛt-**	'pass the morning'
gɔllɛ	'work'	**gɔll-**	'work'
kɛddɛ	'remains'	**hɛdd-**	'remain'
yaafɛ	'pardon, forgiveness'	**yaaf-**	'forgive'
jiilɛ	'view'	**yih-**	'see'
tuutaaɗɛ	'phlegm, mucus, sputum'	**tuut-**	'spit, vomit'
baawɗɛ	'power'	**waaw-**	'be capable'

Some objects in the 'DE class consist of two equal parts. They have no singular form.

mɛsɛkɛɛjɛ	'scissors'
kampaajɛ	'pincers to hold small pots with melted metal'
kuppuujɛ	'pincers to hold hot metal in order to bend it'
gallaaɗɛ	'horns'

The initial consonant of the nouns in the 'DE class take the form of the alternating consonant in the plosive series. The different suffix forms which belong to the 'DE class are listed below.

grade A:	**-ɛ**	objective word derivation
grade B:	**-jɛ**	associative word derivation
grade C:	**-ɗɛ**	circumstantial word derivation
grade D:	**-ɗɛ**	subjective word derivation
a-typical:	**-ɛɛlɛ**	plural augmentative
	-lɛ	"a lot of" (?) meaning and historical origin unclear

7.4.3.1 THE GRADE A SUFFIX FORM -ɛ

The suffix form -ɛ occurs after nominal and verbal stems in the objective word derivation.

tann-i ki / tann-ɛ	'the desert date (Balanites aegyptiaca)'
laac-i ki / lac-ɛ, laccɛ	'the tail'
daag-ɔ ⁿgɔ / daag-ɛ	'the mat'
jaw-ɔ ⁿgɔ / jaw-ɛ	'the bracelet'
duɗ-al ⁿgal / duɗ-ɛ	'the Koran school'
ⁿgɛs-a ba / gɛs-ɛ	'the field'
yit-ɛrɛ ⁿdɛ / git-ɛ	'the eye'
hɔɔd-ɛrɛ ⁿdɛ / kɔɔd-ɛ	'the star'
hɔɔ-rɛ ⁿdɛ / kɔh-ɛ	'the head'
naw-rɛ ⁿdɛ / nabbɛ, naw-ɛ	'the pond, lake'
saa-rɛ ⁿdɛ / cɛh-ɛ	'the village (not of Fulbe)'
waa-rɛ ⁿdɛ / bah-ɛ	'the beard'
haw-rɛ ⁿdɛ / kaf-ɛ	'the sheaf, bundle of grass'
sɛw-rɛ ⁿdɛ / cɛf-ɛ	'the herd'
hɔls-ɛrɛ ⁿdɛ / kɔlc-ɛ	'the hoof'

The stem final consonant alternations of the above examples are discussed in section 3.2.

Nouns which are derived from verbs denote the unmarked or cognate objects of these verbs, or the cognate state when the related verb is inchoative. The singular and plural forms use the same suffix grade because the semantic relation between the noun and the related verb is not influenced by number. More examples can be found in the descriptions of singular classes which take the plural 'DE class.

ⁿjar-am ɗam / jar-ɛ	'the drink'	**yar-dɛ**	'to drink'
tay-dɛ ⁿdɛ / taj-ɛ	'the part'	**taj-udɛ**	'to cut into pieces'
fim-rɛ ⁿdɛ / piɓ-ɛ	'the tie; wedding'	**fiɓ-udɛ**	'to tie, to knot'
nim-rɛ ⁿdɛ / niɓ-ɛ	'darkness'	**niɓ-udɛ**	'to be dark'
dɛg-al ⁿgal / dɛg-ɛ	'descent, feast of entering the Inner-Delta'	**rɛgaa-dɛ**	'to enter, to descend'
gɔll-ɛ	'work'	**goll-udɛ**	'to work'
kɛdd-ɛ	'remains'	**hɛdd-aadɛ**	'to remain'
yaaf-ɛ	'pardon, forgiveness'	**yaaf-udɛ**	'to forgive'
yaag-ɛ	'reverence'	**yaag-aadɛ**	'to respect, to admire'
sɛmt-ɛ	'reserve'	**semt-udɛ**	'to be timid, reserved'

7.4.3.2 THE GRADE B SUFFIX FORM -jɛ

The suffix form -jɛ marks the associative word formation. It combines with stems that are full words.

maaⁿgoroo-wi ki / maaⁿgɔrɔɔ-jɛ	'the mango tree (Magnifera indica)'
silaamuu-wi ki / silaamuu-jɛ	'the sword, sabre'
humᵐbɛɛ-wɔ ⁿgɔ / kumᵐbɛɛ-jɛ	'the paddle' < Sorogo **kumbe**

sulɛɛ-wɔ ⁿgɔ / sulɛɛ-jɛ	'the shoe' < French **soulier**
taadamaa-rɛ ⁿdɛ / taadamaa-jɛ	'the cloth, wrapper'
sagii-rɛ ⁿdɛ / cagii-jɛ	'the basket' < Bambara **sagi**
bala-wal ⁿgal / balaa-jɛ	'the shoulder'
ⁿdaw-wal, ⁿdawu-wal / ⁿdawuu-jɛ	'the ostrich' < ***ⁿdawu ⁿgu**

The suffix **-jɛ** of the associative word formation always replaces the suffix of the singular noun. This singular noun class suffix is without exception also the suffix form of the associative word formation (grade B).

7.4.3.3 THE GRADE C SUFFIX FORM **-ɗɛ**

The suffix form **-ɗɛ** is found in the following words formed using the circumstantial word derivation (grade C).

pemᵐbor-ki / pɛmᵐbɔr-ɗɛ	'razor'
laɓor-ki / laɓɔr-ɗɛ	'razor'
remir-gɔ / demir-ɗɛ	'agricultural tool'
fijir-dɛ / pijir-ɗɛ	'playground'
lawlɔr-dɛ / lawlɔr-ɗɛ	'bowl for milk'
ley-di / lɛy-ɗɛ	'ground, earth, land'
ⁿgenⁿdi / gɛn-ɗɛ	'village' (place for living < **yɛɛt-** 'live')
ɲɔr-gɔ / ɲɔr-ɗɛ	'winnow'
ⁿgay-ka / gay-ɗɛ	'hole; dug by someone'
ɓirdu-gal / ɓirdu-ɗɛ	'big calabash for milking'
natir-gal / natir-ɗɛ	'camera'
daŋ-ki ki / dan-ɗɛ	'hangar; wind-break'

The fact that the above words are derived using the circumstantial derivation is indicated by the occurrence of the circumstantial extension **-ir-** or **-r-** in the stem and by the semantic relation between the above nouns and the related verb stems. There is an element of "purpose, intention, manner, mode" present in the semantics of these words.

7.4.3.4 THE GRADE D SUFFIX FORM **-ɗɛ**

The following nouns are derived using the subjective word derivation (grade D).

cay-ki ki / cay-ɗɛ	'thorny tree (Acacia albida Delile)'
pallaa-ⁿdi ⁿdi / pallaa-ɗɛ	'lizard'
hunu-kɔ kɔ / kunu-ɗɛ	'mouth'
juŋ-ⁿgɔ ⁿgɔ / juu-ɗɛ	'hand and underarm'
waa-ⁿgɔ ⁿgɔ / ban-ɗɛ	'lance'
ɓɛr-ⁿdɛ ⁿdɛ / ɓɛr-ɗɛ	'heart'
yɔl-ⁿdɛ ⁿdɛ / jɔl-ɗɛ	'absence, lack'
kɔy-ⁿgal ⁿgal / kɔy-ɗɛ	'foot'

Plural nouns with the class suffix **-ɗɛ** can be analyzed as participles. The related verbs and their deverbal and semantic derivation are given in the description of the corresponding singular classes. The participles given in the examples above have developed into separate lexical items. A semantic shift has given these participles an independent meaning.

7.4.3.5 THE SUFFIX FORM -ɛɛlɛ

The suffix form **-ɛɛlɛ** occurs only as the plural marker of nouns which combine in the singular with a suffix of the NGAL class with an augmentative meaning. The plural suffix **-ɛɛlɛ** therefore expresses an augmentative meaning also, besides its plural meaning. This plural suffix **-ɛɛlɛ** can denote both animate and inanimate augmentative nouns.

pɛllal / pɛllɛɛlɛ	'large group; age group'
cuural / cuurɛɛlɛ	'big house, big room'
caggal / caggɛɛlɛ	'large back' (pejorative)
dɔŋⁿgal / dɔŋⁿgɛɛlɛ	'large load'
ɲiiⁿgal / ɲiijɛɛlɛ	'big tooth'
gudal hinɛrɛ / gudɛɛlɛ hinɛrɛ	'big nostril'
biilal / biilɛɛlɛ	'large corral'
nɛɗɗal / nɛɗɗɛɛlɛ, nɛɗɗɛ	'large person'

Sometimes an alternative plural with the regular noun suffix of the 'DE class is also available. The hypothesis is that the augmentative meaning of the plural suffix **-ɛɛlɛ** is attributed to an underlying morpheme ***-al**, a suffix allomorph of the NGAL class which is still present in the plural from **-ɛɛlɛ**. The assimilation of the vowel [**a**] to the vowel [**ɛ**] in the following syllable occurs more often. The etymology of the suffix **-ɛɛlɛ** is that the suffix ***-al** combined with the regular plural suffix **-ɛ** (***-alɛ** > **-ɛɛlɛ**). Lengthening of the vowel is perhaps caused by the analogy of the associative word derivation which has a full word as its stem. The long vowel in the class suffix of the singular is lengthened which resulted in a long vowel in the penultimate syllable of words with two suffixes. An argument for the hypothesis that the suffix ***-ɛɛlɛ** is a combination of the singular NGAL suffix with the plural 'DE suffix is the fact that the plural suffix **-ɛɛlɛ** only forms the plural of augmentative nouns in the NGAL class and the fact that the plural suffix **-ɛɛlɛ** in itself has an augmentative meaning.

7.4.3.6 THE SUFFIX FORM -lɛ

The suffix **-lɛ** occurs in all suffix grades, i.e. with all types of nominal word derivation. Its distribution is similar to that of the suffix **-li**. The consonant [**l**] appears also often in stem final position in the singular noun. The following words are examples of the plural formation with the suffix **-lɛ** in grade A nouns.

hɛnⁿdɔl-dɛ ⁿdɛ / kɛnⁿdɔl-lɛ	'the little ball at end of distaff'
mɛsɛl-al ⁿgal / mɛsɛl-lɛ	'the needle'
gaɓɓulal ⁿgal / gaɓɓulɛ	'the large cheek'
kojjulal ⁿgal / kojjulɛ	'the big occipital hole'
luurdɛ ⁿdɛ / duulɛ	'the cloud'

The consonant [l] in the last three plurals can be either part of the stem or part of the suffix.

The suffix form **-lɛ** added to full nouns always results in the suffix form **-ɛɛlɛ** (see 7.4.3.4 above). There is a similarity in meaning between the suffix **-lɛ** and the suffix **-li** which also expresses diversity of the plural. The following words are examples of the plural formation with the suffix **-lɛ** in grade B nouns.

gaw-ri / gaf-ɛɛlɛ	'millet / different kinds of millet'
ɲiiri / ɲiir-ɛɛlɛ	'cooked rice / different kinds of cooked rice'

The suffix **-lɛ** regularly occurs as the plural of circumstantial noun derivations. The following words are examples of the plural formation with the suffix **-lɛ** in grade C nouns.

naaw-ki / naaw-lɛ	'armpit'
ᵐbod-di / bɔl-lɛ	'snake'
dɛw-gal / dɛw-lɛ	'marriage, marital bond'
cay-gal / cay-lɛ	'goose'
ceer-gal / seer-lɛ	'divorce, separation'
fɛd-dɛ / pɛl-lɛ	'group; age group; organisation'
hɔg-gɔ / kɔw-lɛ, kɔggɛ	'corral fenced off with thorn-bush'
jɔkkɔr-dɛ / jɔkɔl-lɛ, jɔkkɔ-lɛ	'joint'

A few nouns which take the suffix **-lɛ** are not directly the plural of a circumstantial noun derivation, but they are related to such words.

jii-lɛ	'view'	**yii-dɛ**	'to see'
jaw-lɛ	'livestock; possessions, wealth'	**jaw-di**	'wealth'
pal-lɛ	'weft, weft/woof threads'		

The suffix form **-lɛ** is derived from nouns with a stem final [l] where this consonant has been lost in the singular due to different types of assimilation and consonant change. Perhaps this suffix form **-lɛ** is becoming a marker of the circumstantial derivation. This could explain the frequent occurrence of the suffix **-lɛ** in the circumstantial word derivation. The following forms in the Maasina dialect and the Aadamaawa dialect (Mohamadou 1985) show that this process can be observed across dialects and in alternative plural formation in Maasina.

Maasina		Aadamaawa
fijir-dɛ / pijir-ɗɛ	'playground'	**fijir-de / pijir-le**
naaw-ki / naaw-lɛ, naaw-ɗɛ	'armpit'	**naf-ki / naf-ɗe**

The suffix **-lɛ** also occurs in the plural forms of nouns derived using the subjective derivation. The suffix form **-ɗɛ** of these grade D words is formally identical with the subject concord. What remains to be explained in the following grade D words is why the suffix is identical to the subject concord in the singular, but not in the plural where the suffix is **-lɛ**.

jaaw-ⁿgal / jaaw-lɛ	'guinea fowl'
diw-ⁿgal / diw-lɛ	'load'
jɔn-ⁿdɛ / jɔn-lɛ	'chair, place to sit; head quarter'
daw-ⁿgal / daw-lɛ	'raven'
waam-ⁿgɔ / baam-lɛ	'hill'
wii-ⁿdɛ / bil-lɛ, bii-lɛ	'corral in the bush
wiin-ⁿdɛ / biil-lɛ	id.
kadd-u-ⁿgal / kadd-u-lɛ	'garment, article of clothing'
dabb-u-ⁿdɛ / dabb-u-lɛ	'cold season (November-February)'
ɲaag-u-ⁿdɛ / ɲaag-u-lɛ	'request'
waɓɓ-u-ⁿgɔ / gaɓɓ-u-lɛ	'cheek'
jiiw-ɔɔ-ⁿdɛ / jiiw-ɔɔ-lɛ	'rainy storm (rain with a lot of wind)'
wiif-ɔɔ-ⁿgɔ / biif-ɔɔ-lɛ	'wing'
wipp-ɔɔ-ⁿgɔ / bipp-ɔɔ-lɛ	'wing'
yurm-ɛɛ-ⁿdɛ / jurm-ɛɛ-lɛ	'pity, compassion'
hit-aa-ⁿdɛ / kit-aa-lɛ	'year'
ɲam-aa-ⁿdɛ / ɲam-aa-lɛ	'debt'
yan-aa-ⁿdɛ / jan-aa-lɛ	'grave/graveyard'
fɔɔf-aa-ⁿgɔ / pɔɔf-aa-lɛ, pɔɔf-aa-li	'breath, respirations'

The stems of subjective word derivations (grade D) often contain verbal markers such as **-u-** (active voice), **-aa-** (passive voice completive), **-ɛɛ-** (passive voice incompletive) or **-ɔɔ-** (middle voice incompletive). The roots of most of these nouns also exist as verbal stems. Nouns derived in grade D often have alternative plural formations, i.e. with the suffix **-lɛ** and also with the subject concord suffix **-ɗɛ**.

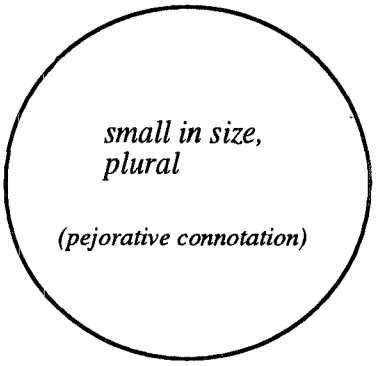
ⁿgeeⁿdi, ⁿgeenⁿdi / gɛllɛ, geɛllɛ, gɛnɗɛ	'village'
ɗɛŋⁿgal, ɗɛmⁿgal / ɗɛmlɛ, ɗɛmɗɛ, ɗɛllɛ, ɗɛnɗɛ	'tongue, language'
labaⁿgal / labaalɛ, labaaɗɛ	'bridle'
janⁿdɛ / janɗɛ, janⁿdɛɛlɛ	'study'
huuⁿdɛ / kullɛ, kuɗɗɛ	'thing'

The alternative plural formations with both the circumstantial suffix **-lɛ** and the proper subjective suffix **-ɗɛ** give the impression that **-lɛ** is not the regular suffix of the subjective derivation. The hypothesis is that the suffix **-lɛ** is built on a morpheme **-l-** possibly expressing diversity (on analogy with the [l] in the suffix **-li**). Some reinterpretation of the suffix **-lɛ** appears to be going on. This is also shown by cross-dialect comparison of words that take the suffix **-ɗɛ** in one, but **-lɛ** in another dialect. The exact direction in which these changes take place is not yet clear. Possibly **-lɛ** is being reinterpreted as the new suffix marker for the circumstantial derivations in the 'DE class. The exact synchronic relation between the suffix forms **-lɛ** and **-ɗɛ** is difficult to explain since plurals of both the circumstantial and the subjective derivations combine with the **-lɛ** and **-ɗɛ** suffixes (in Grades C and D). One possible outcome is that the suffix **-lɛ** in the circumstantial derivation will be replaced by the suffix **-ɗɛ** which is identical to the subjective derivation. This should explain the exception of the occurrence of the suffix **-lɛ** and the suffix **-ɗɛ** in

the circumstantial derivations. This seems to be the case in the Maasina dialect where the unproductive circumstantial derivation **naawki/naawlɛ** 'armpit' "with which to carry under the arm" has the circumstantial derivational suffix **-lɛ**, but the productive derivation **fijirdɛ/pijirɗɛ** 'playground' "place for playing" has the suffix **-ɗɛ** from the subjective derivation in the plural. The words are derived from the verb stems **naaf-** 'carry under the arm' and **fij-** 'play'. Another possible outcome is that more circumstantial derivations will replace their suffix **-ɗɛ** with the suffix **-lɛ**, so that **-lɛ** becomes the marker of the circumstantial derivation. At the same time, the subjective derivations will replace their suffix form **-lɛ** with **-ɗɛ** so that **-ɗɛ** becomes the marker of the subjective derivation. This seems to be the case in Aadamaawa where the suffix **-lɛ** occurs in the productive circumstantial word derivation **fijirde/pijirle** 'playground'. The word **naf-ki/naf-ɗe** 'armpit' combines in Aadamaawa with the regular suffix **-ɗɛ** of the subjective and circumstantial word derivations.

7.4.4 THE KOY CLASS

The KOY class categorizes nouns with a diminutive and plural meaning. The diminutive class NGEL always forms its plural with the KOY class. The diminutive meaning can be applied to animate and inanimate nouns. The KOY class has the same connotations of disparagement and affection as the singular diminutive class. The semantic content of the KOY class is represented in the following figure.



The nouns in the KOY class take the initial consonant from the prenasalized series. The suffix form of the KOY class is usually in the same grade as the singular suffix form. The singular and plural forms are formed using the same type of word derivation. The following words are regular objective word derivations which contain the grade A suffix form **-oy**.

ɲal-el / ɲal-oy	'little calf'	**ɲal-ɛ / ɲalb-i**	'calf'
dewt-el / ⁿdewt-oy	'little book'	**dɛwt-ɛrɛ / dɛwt-ɛ**	'book'
jaw-el / ⁿjaw-oy	'little bracelet'	**jaw-ɔ / jaw-ɛ**	'bracelet'
powel / powoy	'little hyena'	**fow-ru / pobb-i**	'hyena'
pobbel / pobboy	id.		

The last example shows that the plural diminutive form can be based on either the singular or plural stem when stem final consonant alternation occurs in the basic word. Reanalysis has lead to the different possible forms of the stem.

The following examples are grade B nouns combining with the suffix form **-woy**.

cagi-wel / cagi-woy	'little basket'	**sagii-rɛ / cagii-jɛ**	'basket'
duko-wel / ⁿdukowoy	'little dispute'	**duk-ɔ / dukoo-ji**	'dispute'
haala-wel / haala-woy	'little speech'	**haal-a / haalaa-ji**	'speech'

When the plural of a noun is formed by the addition of the suffix **-ji**, then the diminutive and augmentative forms are also formed by the addition of the grade B suffix to the stem which is the full singular noun, as in the examples **ⁿdukowoy** 'little disputes' and **haalawoy** 'little words'.

The following examples are grade C nouns combining with the suffix form **-koy**.

jaŋⁿgir-gel / ⁿjaŋⁿgir-koy	'(little) writing slate'	**jaŋⁿgirgal / ⁿjaŋⁿgirɗɛ**
tumᵐbu-gel / tumᵐbu-koy	'(little) calabash recipient'	**tumᵐbudɛ / tumᵐbuɗɛ**
miŋiraa-gel	'(little) younger sibling'	**miŋiraaɗɔ / miŋiraaɓɛ**
jaw-gel / jawkoy, ⁿjaw-koy	'(little) ram'	**ⁿjaw-di-ri / jaw-dî**

Diminutive plural nouns in grade C often use the atypical **-loy** suffix which is discussed in section 7.4.4.1.

The following nouns combine with the suffix form **-koy** which marks the subjective word derivations (grade D).

daŋ-ⁿgel / ⁿdaŋ-koy	'little he-goat'	**ⁿdam-ⁿdi / dam-dî**	'he-goat'
ɓiŋ-ⁿgel / ɓik-koy	'little child'	**ɓiɗ-ɗɔ / ɓiɓ-ɓɛ**	'child'
juŋ-ⁿgel / juu-koy	'little hand, arm'	**juŋ-ⁿgɔ / juu-ɗɛ**	'hand, arm'

More examples of the regular formations in the KOY class are given in the description of the singular diminutive class NGEL (see section 7.2.10).

7.4.4.1 THE SUFFIX FORM -loy

The atypical suffix form **-loy** occurs only in the diminutive plural form of nouns which combine with one of the plural suffixes **-lɛ** or **-li** in the same nominal paradigm. The consonant [l] recurs in the nominal paradigm. The distribution of this consonant [l] has different patterns. Sometimes the consonant [l] only appears in the plural suffix forms, sometimes it appears both in the plural and the singular suffix forms. The consonant [l] appears in a certain order on an implicational scale in nouns formed with the plural, diminutive, and augmentative classes.

'DE		'DE, 'DI		KOY		NGEL, NGAL
augmentative		basic		diminutive		diminutive, augmentative
plural		plural		plural		singular
-ɛɛ-l-ɛ	<–	**-l-ɛ**	<–	**-l-oy**	<–	**-l-el**
		-l-i				**-l-al**

This implicational scale is exemplified below. There are forms where the consonant [l] only appears in the basic plural form, as in the following examples.

laba-^{n}gal / labaa-lɛ, labaa-ɗɛ	'bridle'	**laba-^{n}gel / laba-koy**	'small bridle'
ɗɛŋ-^{n}gal / ɗɛllɛ, ɗɛnɗɛ	'tongue'	**ɗeŋ^{n}gel / ɗeŋkoy, ɗeŋ^{n}goy**	'uvula'

The plural forms **labaaɗɛ** 'bridles' and **ɗɛnɗɛ** 'tongues' are innovative plural forms. These forms replace the irregular suffix **-lɛ** with the suffix **-ɗɛ**. This replacement appears to be motivated by paradigm levelling. The result is a nominal paradigm with only regular grade D suffix forms.

The consonant [l] only occurs in the plural suffix forms **-lɛ**, **-li**, and **-loy**, but not in the singular noun of the nominal paradigm.

cay-gal / cay-lɛ	'goose'	**caygel / cayloy**	'little goose'
hitaa-^{n}dɛ / kitaa-lɛ	'year'	**kita^{n}gel / kitaloy**	'little year'
diw^{n}gal / diwlɛ	'load'	**diw^{n}gel / diwloy**	'little load'
ʔillaa^{n}gɔ / ʔillaali	'sneeze'	**ʔilla^{n}gel / ʔillaloy**	'little sneeze'
^{n}gee^{n}di / gɛllɛ	'village'	**geŋ^{n}gel / gelloy**	'little village'

Sometimes alternative forms indicate that a reanalysis of stem and suffix forms is taking place.

dɔŋ^{n}gal / dɔllɛ, dɔŋ^{n}gɛ	'(little) load'	**doŋ^{n}gel / ^{n}dolloy, ^{n}doŋ^{n}goy**
wuugaa^{n}du / buugaali	'(little) pigeon'	**buugalel / ^{m}buugaloy; buugawel**
huu^{n}dɛ / kullɛ	'(little) thing'	**kullel / kulloy** or **kuŋ^{n}gel / kuŋkoy**

The consonant [l] which occurs in the above examples does not occur in some variant forms of these words. The singular noun **buugalel** 'small pigeon' has a reanalyzed form **buugawel** with a grade B suffix. The plural form **dɔllɛ** 'loads' has an alternative form **dɔŋ^{n}gɛ** reanalyzed with a grade A suffix where the part [^{n}g] of the singular suffix is reinterpreted as part of the stem. The diminutive of **huu^{n}dɛ** 'thing' takes either the singular form ***hun-** as a regular grade D stem or the plural stem ***hull-** as a regular grade A stem. The consonant [l] appears in all plural, diminutive, and augmentative formations in the following paradigms. Only the normal size singular form does not show a (stem final or suffix initial) consonant [l].

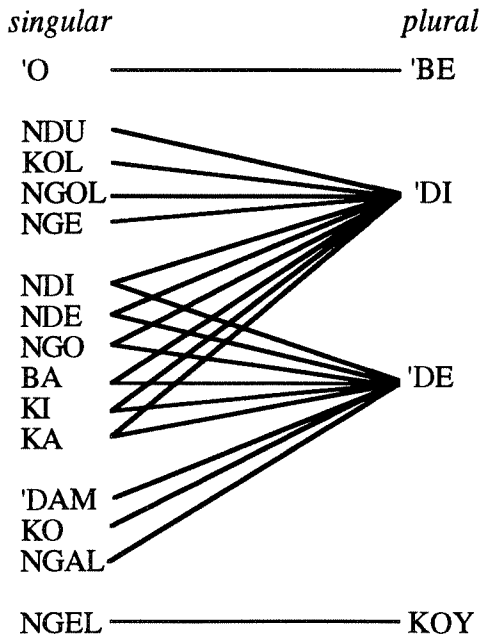
grade A:	**moorol / moolli**	'braid, plait'	**moolel / mooloy** or **moollel / moolloy**
grade B:	**suka / sukaaɓɛ**	'child'	**cukalel / cukaloy**
	wuugaa^{n}du / buugaali	'pigeon'	**buugalel / ^{m}buugaloy, buugawel**
grade C:	**naawki / naawlɛ**	'armpit'	**naawlel / naawloy**
	wuddu / gulli	'navel'	**gullel / ^{n}gulloy**
	hoɟɟudu / koɟɟuli	'occipital hole'	**koɟɟulel / koɟɟuloy**
	fɛddɛ / pɛllɛ	'age group'	**pellel / pelloy**

grade D:	**wee^{n}du / beeli**	'pool, pond'	**beelel / ^{m}beeloy**
	wii^{n}dɛ / biillɛ	'corral'	**biilel / ^{m}biiloy**
	ɓun^{n}du / ɓulli	'pit, well'	**ɓulel / ɓuloy**
	foo^{n}du / pooli	'bird'	**poolel / pooloy**
	waɓɓu^{n}gɔ / gaɓɓulɛ	'cheek'	**gaɓɓulel / gaɓɓuloy**
	fedee^{n}du / pedeeli	'finger'	**pedelel / pedeloy**
	faa^{n}du / paali	'gourd'	**paalel / paaloy**
	wutaa^{n}du / butaali	'cob of millet'	**butalel / butaloy, ^{m}butaloy**
	yee^{n}du / jeeli	'ant-eater'	**jeelel / ^{n}jeeloy**

The hypothesis is that [l] is part of the plural formation because the implicational scale shows that the consonant [l] appears first in the plural formation and then in the diminutive and augmentative formations and because this consonant [l] does not occur in the suffixes of any other class. This consonant [l] has consequently been reanalyzed as stem final which has resulted in its re-appearance in the diminutive and augmentative formations.

7.5 SINGULAR / PLURAL PAIRING

The pairing of the singular and plural classes which occurs in Maasina is represented in the following figure. The 'DUM and KAL classes are excluded from the figure because the nouns of those classes never pair off with a plural form. Lines represent the occurrence of a singular/plural pair of the classes given at both ends of the connecting lines.



Some classes combine with only one particular plural class. Many singular classes can pair with two possible plural classes. The distribution of these two plural classes is not random (cf. section 7.4). The plural can be chosen on morphological grounds: certain classes have a fixed plural class. The plural can be chosen on semantic grounds when two plural classes are possible. The 'DE class forms the plural of inanimate nouns and the 'DI class forms the plural of animate nouns. The plural can also be chosen on derivational grounds: the plural

suffix is **-ji** when the plural is formed by the addition of a suffix to the full singular noun. The morphological, semantic, and word derivational motivations for the choice of the plural class can also apply at the same time in a particular case. The following generalizations can be made concerning the choice of the plural classes in the Fulfulde of Maasina.

First, the following fixed singular/plural pairs are morphologically motivated.

NDU - 'DI
NGU - 'DI
NGOL - 'DI

There are a number of fixed singular/plural pairs where no semantic motivation can be found. The formation of the above mentioned singular/plural pairs seems to be morphologically motivated. There is a phonological regularity in the vowel of the singular and plural forms of these classes. The singular classes which only combine with the plural 'DI class are all formed with a [+ATR, +round] vowel.

Second, the following fixed singular/plural pairs are both morphologically and semantically motivated.

NGAL	- 'DE	augmentative nouns
NGEL	- KOY	diminutive nouns
NGE	- 'DI	animate nouns
KOL	- 'DI	one animate noun
'DAM	- 'DE	one inanimate noun
KO	- 'DE	one inanimate noun

The above mentioned fixed singular/plural pairs show a regular correspondence between the meanings of the singular and plural noun in the following semantic features: animate, inanimate, diminutive, and augmentative.

Third, there is a semantic motivation for the choice of the different plural classes within the nouns which use the concord of the 'O class.

'O	- 'BE	{**ɓɛ**, **ʔɛn**}	persons
'O	- 'DI	{**-ji**}	other (animals and things)

The plurals of the 'O class are determined by the semantic content of the nouns. Nouns denoting persons take the plural 'BE class. Other nouns, i.e. loan-words or Fulfulde words which changed their concord to that of the 'O class and which do not denote persons, take the plural suffix **-ji**. Loan-words which denote persons sometimes have two alternative plural suffixes **-ʔɛn** and **-ɓɛ**. The vowel initial suffix **-i** is only found in the 'O class as the plural suffix of words that shifted their concord from the NGU class to the 'O class. The singular suffix of these words is still a suffix from the NGU class.

Fourth, there is a semantic motivation for the choice of the plural class of the following singular classes.

		animate	inanimate
NDI	-	'DI,	'DE
NDE	-	'DI,	'DE
BA	-	'DI,	'DE
KI	-	'DI,	'DE

The plural suffix of the rest of the non-human singular noun classes which combine with either the 'DE or the 'DI plural class is determined by the semantic content of the noun. Exceptions to this generalization are a number of words denoting small mammals, reptiles, fish, and insects. These animals take a suffix of the 'DE class because they bite or sting which gives them a pejorative connotation. The hypothesis is that the pejorative connotation of the 'DE class plays a role in the choice of the inanimate plural class for these words.

Fifth, nouns in the following classes normally take the suffix of the 'DE class on the basis of the semantic distinction animate versus inanimate. The semantically motivated plural 'DE class is often replaced by **-ji**.

		regular plural inanimate	general innovative plural	irregular plural (noises) large amount of (?)
NGO	-	'DE,	{**-ji**},	{**-li**}
KA	-	'DE,	{**-ji**}	
NDE	-	'DE,	{**-ji**}	

Many nouns combine with the plural suffix **-ji** which is the only plural suffix which is added to the full singular noun. A noun to which the plural suffix **-ji** is added contains then two suffixes: the singular suffix occurs in the stem. This added suffix **-ji** has lost its specific animate meaning of the 'DI class.

In conclusion the motivations for the choice of the plural class can be summarized as follows:

1. Morphologically fixed pairs: NDU, NGOL, NGU take plural 'DI class.

2. Semantic motivation related to the meaning of the plural class:

if augmentative noun,	then plural 'DE class
if diminutive noun,	then plural KOY class
if person,	then plural 'BE class
if inanimate noun,	then plural 'DE class
if stinging or biting animate noun,	then plural 'DE class
if animate noun,	then plural 'DI class

This system is disturbed by the suffix form **-ji** and **-li** of the 'DI class. The suffixes **-ji** and **-li** are also used as the plural for loan-words because they behave differently from other plural formations in that they are added to the full singular noun. They do not replace the singular suffix like other plural suffixes.

The following meanings are attributed to the plural classes based on the distribution of the plural classes.

'DE	plural, augmentative, pejorative (danger), inanimate
'DI	plural, animate
KOY	plural, diminutive, pejorative (low esteem)
'BE	plural, persons

Not all meanings attributed to one plural class are always present in each occurrence of a form in that plural class. A word like **cɔfal/cɔfɛ** 'chicken' takes the plural 'DE class because the augmentative meaning of the large birds in the NGAL/'DE classes. A word like **yaarɛ/jahɛ** takes the plural 'DE class because a scorpion can give a nasty sting which gives this word pejorative connotations. A word like **laɓi/laɓɛ** 'knife' takes the plural 'DE class because of its inanimate meaning. The plural 'DI class occurs in **suudu/cuuɗi** 'house' as a morphologically motivated plural because the NDU class always combines with the plural 'DI class. The special form **-ji** has a general plural meaning as plural of loan-words. It often expresses the meaning "different kinds of", e.g. in the plural of **ɲiiri** 'staple food, meal' which is **ɲiiriiji** 'different kinds of meals, different kinds of staple food'. The animate meaning of the 'DI class can be found in the many plural forms of animal names like **puccu/pucci** 'horse'. The nouns in the KOY class always have the diminutive meaning. The word **ɓiɗɗɔ** is preferred in Maasina because the pejorative connotation of the diminutive is present even in **ɓiŋⁿgel/ɓikkoy** 'child, baby'. A noun like **dewel/ⁿdewoy** 'girl, little woman' also has a pejorative connotation according to my consultants. The nouns in the 'BE class like **nɛɗɗɔ/yimɓɛ** 'person/people' always combine both meanings of the 'BE class: plural and person.

Chapter 8
Nominal modifiers and pronominals

8.1 ADJECTIVES

In Fulfulde, the difference between a noun and an adjective is determined by the function of the noun class suffix. The class suffix in nouns has a derivational and classifying function. The class suffixes of nouns are used to derive nouns from nominal or verbal stems and they indicate which concord should be used to refer to that noun. The number of class suffixes with which the stem of a noun can combine is limited.

The noun class suffix of adjectives functions as a concord: it refers to the noun which is modified by the adjective. In principle, adjectives can occur with suffix forms of all twenty-two noun classes. There are instances when an adjective cannot occur with a suffix of a certain class. This can often be explained on semantic grounds: there is no word in that class which can be associated with the semantic content of that particular modifying adjective. McIntosh (1984:47-51) disagrees with this criterion (the number of classes with which a stem can combine) as the basis for distinguishing nouns from adjectives. She states that both nouns and adjectives occur in whichever classes their semantic compatibility allows them to. She claims that the combination of the (adjectival) root **rɛw-** 'female' with a suffix of the 'DAM class denoting liquids is as ridiculous as the combination of the (noun stem) root **nag-** 'cow' with a suffix of the 'O class denoting persons.

There are however a number of arguments for classifying **rɛw-** 'female' as an adjective. To illustrate this point, examples involving the adjective **wɔr-** 'male' will also be given. Firstly, these words always follow those words which can more clearly be defined as nouns. This is the typical slot for modifiers in Fulfulde noun phrases.

pullɔ dɛbbɔ	'a Fulbe woman'	[lit: 'a female Pullo']
pullɔ gɔrkɔ	'a Fulbe man'	[lit: 'a male Pullo']

A noun in the adjectival position following the noun would result in a genitive construction 'the Pullo of the woman', but this is not the meaning of these noun phrases.

Secondly, in Maasina the adjectival stems **rɛw-** 'female' and **wɔr-** 'male' do combine with a suffix of the 'DAM class. The term **ⁿdiyam ⁿdɛwam** 'female water' describes the calm water, streaming at the lower bank of the river, where more fish can be caught. The idiomatic expression **ⁿdiyam ⁿgɔram** 'male water' describes the water streaming more wildly at the higher bank of the river. Below a few more idiomatic uses of these adjectives are given to contradict the claim that they are semantically incompatible with certain classes denoting only inanimate nouns, stated by Arnott (1970a:78) and McIntosh (1984:50).

NGO	**fɔŋⁿgɔ rɛwɔ**	'lower bank'	[lit: 'female side']
'DAM	**ⁿdiyam ⁿdɛwam**	'water at lower bank'	[lit: 'female water']
NGAL	**lɛggal dɛwal**	'shorter stick of type of fish net'	[lit: 'female stick']
NGA/BA	**ⁿgɛlɔɔba ⁿgɔra**	'male camel'	
NGE	**naggɛ wɔrɛ**	'male cow'	
NDU	**fedˈeeⁿdu wordu**	'thumb'	[lit.: 'male finger']
KA	**haala ⁿgɔra**	'commitment'	[lit: 'male word']
NGO	**fɔŋⁿgɔ wɔrɔ**	'higher bank'	[lit: 'male side']
'DAM	**ⁿdiyam ⁿgɔram**	'water at higher bank'	[lit: 'male water']
NGAL	**lɛggal gɔral**	'longer stick of type of fish net	[lit: 'male stick']

Adjectives are defined here by their (potential) occurrence in all noun classes. The most important criterion is the fact that the adjective modifies another noun which is present in the discourse and the concordial class suffix of the adjective refers to this noun. Adjectives also differ from nouns with regard to the distribution of the initial consonant series (see section 3.1.3).

The adjectives in the Maasina dialect can be divided into three groups based on the type of suffix they take, either grade A, grade B or grade D. Grade C does not occur with any adjective in Maasina. The three categories of suffix forms in adjectives can perhaps explain why Gaden (1913:21) distinguishes only these sets of suffix forms coinciding with the suffix forms found for adjectives in Maasina. Grade C occurs only in nouns, and in only one adjective in the eastern dialects, and this grade has later been added by Klingenheben (1941:15-19) as an additional fourth set of suffix forms.

Arnott (1970a:77) states that each stem combines with one grade. The grade from which an adjective takes its suffix forms is traditionally considered to be a lexical feature of the (adjectival) stem. As shown in chapter 6, the hypothesis defended here is that the type of word formation determines which suffix grade is chosen. The formation of these three groups of adjectives is different. Grade A adjectives are the "basic" adjectives, that is the stems are non-derived forms. These stems are nominal. Adjectives that combine with grade B suffix forms are denominal adjectives. These stems are full nouns, sometimes even full phrases, which act as an adjectival stem. The concord expresses the fact that the modified noun shares a semantic feature with the word in the adjectival stem. Grade D adjectives are deverbal. These stems are formed by a verb stem that can be followed by verbal markers. The concord signals that the modified noun has the semantic role of the subject of the verb stem. The adjectives in Grade D are participles.

The absence of adjectives in grade C is remarkable. It should be noted that in the Fulfulde dialects of Gombe and Aadamaawa there is one adjective, i.e. **wɔr-** 'male', which combines with suffix forms of grade C, the same adjectival stem combines with suffixes of grade A with an irregular suffix **-kɔ** in the 'O class in Maasina.

Gombe, Aadamaawa: grade C		Maasina: grade A	
'O	**gor-ko**	'O	**gɔr-kɔ**
'BE	**wor-ɓe**	'BE	**wɔr-ɓɛ**
NGEL	**gor-gel**	NGEL	**gor-el**
NGUM	**gor-gum**	—	
KON	**ŋgor-kon**	KOY	**gor-oy, ⁿgor-oy**
NGA	**ŋgor-ga**	—	
KO	**ŋgor-ko**	—	
NDE	**wor-de**	NDE	**wɔr-dɛ**
NDI	**ŋgor-di**	NDI	**wor-di, ⁿgor-di**
NDU	**wor-du**	NDU	**wor-du**
NGA	**ŋgor-ga**	NGA/BA	**wɔr-a, ⁿgɔr-a**
NGE	**wor-ge**	NGE	**wɔr-ɛ**
NGO	**wor-go**	NGO	**wɔr-ɔ**
NGU	**ŋgor-gu**	NGU	**wor-u, ⁿgor-u**
NGAL	**gor-gal**	NGAL	**gɔr-al**
NGOL	**gor-gol**	NGOL	**gor-ol**
KOL	**gor-kol**	KOL	**gor-ol**
KA	**[ŋgor-ka]**	KA	**wɔr-a, ⁿgɔr-a**
KI	**gor-ki**	KI	**wor-i, ⁿgor-i**
KO	**[wor-ko]**	KO	**wɔr-ɔ**
KOL	**gor-kol**	KOL	**gor-ol**
'DAM	**[ŋgor-ɗam]**	'DAM	**gɔr-am, ⁿgɔr-am**
KAL	**[gor-kal]**	KAL	**gɔr-al**
'DUM	**gor-ɗum**	'DUM	**gor-um**
'DE	**gor-ɗe**	'DE	**gɔr-ɛ**
'DI	**gor-ɗi**	'DI	**gor-i**

The grade C form of this adjective in the eastern dialects is thought to be an innovation. The occurrence of the grade C suffix forms is triggered by the stem final consonant [**r**], which is identical to the [**r**] form of the circumstantial extension which is postulated as the grade marker in the underlying form of grade C suffix forms.

8.1.1 GRADE A: BASIC ADJECTIVES

The following adjectives combine with grade A suffix forms. All stems which combine with a grade A suffix are (underlyingly) consonant final. The adjectives in grade A are basic. They are not derived from a verb or a noun. On the contrary, verbs are derived form these stems by adding the inchoative extension -(**i**)**ɗ**- to the stem. The number of these basic adjectives is restricted.

adjectival stem		derived verbal stem	
ʔɔɔl-	'yellow'	**ʔɔɔl-ɗ-**	'be(come) yellow'
hɛs-	'new'	**hɛy-ɗ-**	'be(come) new'
hɛcc-	'fresh'	**hecc-iɗ-**	'be fresh'
lɔbb-	'good, nice'	**lobb-iɗ-**	'be nice'

ɓutt-	'big, fat'	**ɓutt-iɗ-**	'be big, fat'
fur-	'grey, dusty'	**fur-ɗ-**	'be(come) grey'
lugg-	'deep'	**lugg-iɗ-**	'be(come) deep'
fam-ar-	'small'	**fam-ɗ-**	'be small'
faŋk-ar-	'ugly'	**faŋk-iɗ-**	'be ugly'
raɓɓ-	'short'	**raɓɓ-iɗ-**	'be short'
mɔɟɟ-	'good'	**mɔɟɟ-**	'be(come) good'
ɓɔl-	'empty, nude'	**ɓɔl-**	'strip, pluck'
wɔr-	'male'		
rɛw-	'female'		
janan-	'belonging somewhere else'		
wɔɔt-	'one'		
ɗiɗ-aɓ-	'second' [centre of Maasina]		
ɗiɗ-ɔɓ-	'second' [Gimballa]		

The verbal stems in the right column are derived from the adjectives in the left column. Not all the adjectival stems listed here need the inchoative extension -(i)**ɗ**- to form a verb. A few adjectival stems like **mɔɟɟ**- 'good' can be either an adjectival stem, combining with grade A suffix forms, or a verb stem, combining with verbal conjugations. And all verb stems can occur with suffix forms of grade D, to form a participle or a deverbal adjective. The following table gives the stem **mɔɟɟ**- in combination with the suffix forms of different grades.

stem	+ grade	+ class	->	nominal	
Adj.	+ A	+ 'O	->	**nɛɗɗɔ mɔɟɟ-ɔ**	'good person'
V	+ D	+ 'O	->	**nɛɗɗɔ moɟɟ-u-ɗɔ**	'good person; has become good'
V	+ C	+ NDE	->	**moɟɟ-u-dɛ**	'to be(come) good'
Adj.	+ A	+ NDE	->	**huu^{n}dɛ mɔɟɟ-ɛrɛ**	'good thing'
V	+ D	+ NDE	->	**huu^{n}dɛ moɟɟ-u-^{n}dɛ**	'good thing; has become good'

The fact that one stem can occur with different grades (i.e. different suffix forms) is an indication that the choice of the suffix form is not determined by the shape of the stem, but rather by the type of word being formed, deverbal, denominal etc. There are two possibilities to treat the stem **mɔɟɟ**- 'good'. One way is to mark the adjectival stem **mɔɟɟ**- 'good' for the category Nominal and to mark the stem **mɔɟɟ**- 'to be good' as Verbal in the lexicon so that one can predict correctly the choice of the suffix form. But if the nominal and the verbal stem are considered to be one polysemic stem, it should not be listed twice, once as nominal and once as verbal, but then the nominal and verbal derivations in themselves should provide the correct suffix form.

There seems to be a slight semantic difference between an adjective formed from the basic adjectival stem and the deverbal form where the participle is used as an adjective. This semantic difference becomes clear in the following two examples.

grade A:	**fur-ɛ**	'a cow with a dusty skin colour'
grade D:	**fur-ɗ-u-^{n}gɛ**	'a cow that has become dusty coloured, e.g. covered with mud'

The two examples above refer to the noun **naggɛ**. It is considered stylistically not correct to put this noun before these words. **naggɛ furɛ** would be a pleonasm, because by **furɛ** alone it is already understood that a cow is meant. In the adjective **furɛ** the skin colour of a cow is described, it is supposed to have been born like that. In the deverbal adjective (participle) a change of colour is expressed, possibly because the cow has been rolling through the mud. When the basic adjective is used, a general unchanging state of the noun concerned is described. When the deverbal form is used, emphasis is put on the change of state undergone by the noun described. The change of state is expressed by the choice of the verb and its inchoative extension -(i)**ɗ**- 'to become, to be', its meaning indicating a change of state.

The following table gives examples of grade A adjectives, in combination with all class suffixes. The forms of the grade A suffixes are discussed in Chapter six.

class	'good, nice'	'grey'	'strange'	'new'
'O	**lɔbb-ɔ**	**pur-ɔ**	**janan-ɔ**	**kɛs-ɔ**
'BE	**lobb-u-ɓɛ**	**fur-ɓɛ**	**janam-ɓɛ**	**hɛy-ɓɛ**
NGEL	**lobb-el**	**pur-el**	**janan-el**	**kes-el**
KOY	**lobb-oy**	**pur-oy**	**ⁿj, janan-oy**	**kes-oy**
NDE	**lɔbb-ɛrɛ**	**fur-dɛ**	**janan-ⁿdɛ**	**hɛy-rɛ**
NDI	**lobb-iri**	**p, fur-di**	**ⁿj, janan-ⁿdi**	**k, hey-ri**
NDU	**lobb-uru**	**fur-du**	**janan-ⁿdu**	**hey-ru**
NGA/BA	**lɔbb-a**	**p, fur-a**	**ⁿj, janan-a**	**k, hɛs-a**
NGE	**lɔbb-ɛ**	**fur-ɛ**	**janan-ɛ**	**hɛs-ɛ**
NGO	**lɔbb-ɔ**	**wɔr-ɔ**	**janan-ɔ**	**hɛs-ɔ**
NGU	**lobb-u**	**p, fur-u**	**ⁿj, janan-u**	**k, hes-u**
NGAL	**lɔbb-al**	**pur-al**	**janan-al**	**kɛs-al**
NGOL	**lobb-ol**	**pur-ol**	**janan-ol**	**kes-ol**
KOL	**lobb-ol**	**pur-ol**	**janan-ol**	**kes-ol**
KA	**lɔbb-a**	**p, fur-a**	**ⁿj, janan-a**	**k, hɛs-a**
KI	**lobb-i**	**p, fur-i**	**ⁿj, janan-i**	**k, hes-i**
KO	**lɔbb-ɔ**	**fur-ɔ**	**janan-ɔ**	**hɛs-ɔ**
'DAM	**lɔbb-am**	**pur-am**	**ⁿj, janan-am**	**kɛs-am**
KAL	**lɔbb-al**	**pur-al**	**janan-al**	**kɛs-al**
'DUM	**lobb-um**	**pur-um**	**janan-um**	**kes-um**
'DE	**lɔbb-ɛ**	**pur-ɛ**	**janan-ɛ**	**kɛs-ɛ**
'DI	**lobb-i**	**pur-i**	**janan-i**	**kes-i**

The possible variation of the initial consonant of adjectives is indicated by the addition of the initial consonants {**p**, **ⁿj**, **k**} which are used when the adjective does not follow the noun which it modifies. A sonority constraint does not allow the occurrence of the fricatives [**s**] or [**f**] in syllable final position. The change of these fricatives to approximants is productive when basic adjectival stems ending in these segments occur before the suffix forms -**r**V and -**ɓɛ**. These phonological rules describing the allomorphy of the adjectival stems in this table, such as ATR vowel harmony, the application of syllable final sonority constraints, the initial consonant alternation etc., apply to all nominals and are described in part one.

8.1.2 GRADE B: DENOMINAL ADJECTIVES

The number of adjectives which take a suffix form of Grade B as class concord is restricted. Like the nouns that are formed with a suffix of grade B, the adjectives formed with a suffix form of grade B are also built on full words that function as a stem. These are what Klingenheben (1963:127-132) describes as secondary adjectives. The formation of adjectives on the basis of full nouns or even phrases seems more productive in the Aadamaawa dialect. The adjectives **laddɛ-** 'wild' and **mɛɛrɛ-** 'worthless' derived from **laddɛ** 'wilderness' and **mɛɛrɛ** 'nothing' can occur in all classes in Aadamaawa. In Maasina the same roots occur only in a few derived nouns, e.g. **laddeeru** 'lion' [lit: "wild (cat-like) one"] and **mɛɛrɛɛjɔ** 'a good-for-nothing' [lit: "person of nothing"]. The fact that grade B adjectives are denominal and have full words as their stem is further discussed in section 8.1.3 on colour terms.

The agentive nominal is also denominal and takes the suffix form of grade B discussed in section 8.1.4. It is also built on a full noun, i.e. a stem which includes a class suffix.

In the table below a few examples of adjectives that combine with suffixes of grade B are given.

	'old'	'red'	'first'	'leaving'
'O	**nayɛɛ-jɔ**	**bɔɗɛɛ-jɔ**	**ʔaran^{n}dɛɛ-jɔ**	**bittɔɔ-wɔ**
'BE	**nayɛɛ-ɓɛ**	**wɔɗɛɛ-ɓɛ**	**ʔaran^{n}dɛɛ-ɓɛ**	**wittɔɔ-ɓɛ**
NGEL	**naye-wel**	**boɗe-wel**	**ʔaran^{n}dee-wel**	**bittoo-wel**
KOY	**naye-woy**	**^{m}b, boɗe-woy**	**ʔaran^{n}dee-wol**	**^{m}b, bittoo-woy**
NDE	**nayɛɛ-rɛ**	**wɔɗɛɛ-rɛ**	**ʔaran^{n}dɛɛ-rɛ**	**wittɔɔ-rɛ**
NDI	**nayee-ri**	**^{m}b, woɗee-ri**	**ʔaran^{n}dee-ri**	**wittoo-ri**
NDU	**nayee-ru**	**woɗee-ru**	**ʔaran^{n}dee-ru**	**wittoo-ru**
NGA/BA	**nayɛɛ-wa**	**^{m}b, wɔɗɛɛ-wa**	**ʔaran^{n}dee-wa**	**wittɔɔ-wa**
NGE	**nayɛɛ-wɛ**	**wɔɗɛɛ-wɛ**	**ʔaran^{n}dɛɛ-wɛ**	**wittɔɔ-wɛ**
NGO	**nayɛɛ-wɔ**	**wɔɗɛɛ-wɔ**	**ʔaran^{n}dɛɛ-wɔ**	**[wittɔɔ-wɔ]**
NGU	**nayee-wu**	**^{m}b, woɗee-wu**	**ʔaran^{n}dee-wu**	**wittoo-wu**
NGAL	**nayɛ-wal**	**bɔɗɛ-wal**	**ʔaran^{n}dɛɛ-wal**	**bittɔɔ-wal**
NGOL	**naye-wol**	**boɗe-wol**	**ʔaran^{n}dee-wol**	**bittoo-wol**
KOL	**naye-wol**	**boɗe-wol**	**ʔaran^{n}dee-wol**	**bittoo-wol**
KA	**nayɛɛ-wa**	**^{m}b, wɔɗɛɛ-wa**	**ʔaran^{n}dɛɛ-wa**	**wittɔɔ-wa**
KI	**nayee-wi**	**^{m}b, woɗee-wi**	**ʔaran^{n}dee-wi**	**wittoo-wi**
KO	**nayɛɛ-wɔ**	**wɔɗɛɛ-wɔ**	**ʔaran^{n}dɛɛ-wɔ**	**[wittɔɔ-wɔ]**
'DAM	**nayɛ-jam**	**^{m}b, bɔɗɛ-jam**	**ʔaran^{n}dɛɛ-jam**	**^{m}b, bittɔɔ-jam**
KAL	**nayɛ-wal**	**bɔɗɛ-wal**	**ʔaran^{n}dɛɛ-wal**	**[bittɔɔ-wal]**
'DUM	**naye-jum**	**boɗee-jum**	**ʔaran^{n}dee-jum**	**bittoo-jum**
'DE	**nayɛɛ-jɛ**	**bɔɗɛɛ-jɛ**	**ʔaran^{n}dɛɛ-jɛ**	**bittɔɔ-jɛ**
'DI	**nayee-ji**	**boɗee-ji**	**ʔaran^{n}dee-ji**	**bittoo-ji**

The word based on the stem **wittɔɔ-** 'leaving' is an agentive nominal. The word is put here to show the similarity in word formation between the agentive and the adjective nominals with regard to the choice of the grade B suffix form. The verbal stem of the agentive nominals is followed by a morpheme -ɔɔ-. This morpheme is cognate with the marker of the 'O class denoting persons, persons being prototypical agents. The length of the morpheme

-ɔɔ- is caused by a merger of the stem final vowel with the associative marker *ɥ which occurs in grade B word derivations. The two initial consonants, [ᵐb, b] or [ᵐb, w] indicate that there is fluctuation in the initial consonant of this adjective form as described in Chapter three. The agentive form only shows fluctuation in the 'DAM and KOY classes.

8.1.3 GRADE B: COLOUR TERMS WHITE, BLACK, AND RED

Adjectival colour terms which refer to the nouns they modify with a concord suffix prototypically describe the skin colour of cows. Other colour terms, like **haakɔ hɛccɔ** 'green, lit. fresh leaves' and **bulabula** 'blue', are not inflected, they do not show agreement with a suffix concord. Different types of cows are used as environmental reference points for colour. The adjectival colour terms are based on the following Fulfulde nouns in the NGE class denoting cows.

wɔɗ-ɛ	'red cow' (proper name)
ran-ɛ	'white cow' (proper name)
ɓal-ɛ	'black cow' (proper name)
wun-ɛ	'beige, very light yellowish brown cow' (proper name)
say-ɛ	'copper, goldish yellow cow'

The nouns **ɓalɛ**, **wɔɗɛ**, **ranɛ**, **wunɛ** are used to call the cows. They are terms of address, proper names. When used like this, the stems **ɓal-**, **wɔɗ-**, **ran-**, and **wun-** take a grade A suffix form. These words are nouns, their stems can only combine with the suffix **-ɛ** of the NGE class.

The word **ɓalɛ** 'name of a black cow' was given by town-dwellers, it is not used by herdsmen. The following quotation is given by a herdsman in Tenenku: "only someone who doesn't know anything about cows would use those words, a black cow is called **wanɛ**". In the word **wanɛ** 'black cow' the root **wan-** can be recognized. It is also found in **ᵐbana** 'black donkey', a word that has the meaning of 'buffalo' in Fuuta Tooro and Ringimaaji. Even though the word **ɓalɛ** 'name of a black cow' was disapproved of as a correct name for a cow, its significance as a name of a cow was clearly understood, since the herdsman corrected it with another name.

The following adjectival colour terms occur in Maasina. The nouns which are proper names of cows form the adjectival stem to which a grade B suffix of any class can be added.

wɔɗɛ-	'red'
ranɛ-	'white'
ɓalɛ-	'black'
wunɛ-	'beige, very light yellowish brown' (in Duwansa the general term for brown)
sayɛ-	'copper, goldish yellow'

The associative grade marker in the colour terms formed with a grade B suffix indicates that there is a shared feature in the meaning of the full noun in the stem and the meaning of the adjective formed on that stem. This shared feature of any object modified by an adjective formed from a cow's name and such a cow is its skin colour. The feature of the skin colour of a cow is associated with the object to which the adjectival concord refers. Thus **fooⁿdu**

wodeeru 'a red bird' is not "a bird like a red cow", but rather "a bird with the same feature, i.e. colour, as a red cow". Something with a red colour shares this colour feature with a red cow.

The adjectives **wunɛ-** 'brown' and **sayɛ-** 'copper, goldish yellow' were only found in Haayre as productive adjectives. In the centre of Maasina these words could only occur as nouns in grade A denoting proper names of cows of this colour.

The colour terms white, red, and black have two possible forms with either the suffix **-ɛ** or **-wɛ** of the NGE class, a class marker which denotes cows.

	'white'	'red'	'black'	'brown, beige'
1. (noun)	**ran-ɛ**	**ɓal-ɛ**	**wɔd-ɛ**	**wun-ɛ**
2. (adjective)	**ran-ɛɛ-wɛ**	**ɓal-ɛɛ-wɛ**	**wɔd-ɛɛ-wɛ**	**wun-ɛɛ-wɛ**
3. (verb)	**rawn-**	**ɓawl-**	**wɔjj-**	--

To describe a cow with the colours mentioned, the adjective is used. The long vowel **-ɛɛ** in the stem is the vowel of the NGE class suffix of the nouns used by the herdsman when naming and calling this cow, lengthened because of its merger with the grade marker ***ɥ** of grade B. The colour adjectives have two suffixes: the suffix **-ɛ** of the NGE class which occurs in the stem and the concordial suffix referring to the object which it modifies.

Inchoative verbs are derived from the basic stems for red, white, and black with the associative extension ***ɥ**. This derivation is not productive. The vowel **-ɛ** is not attached to these verb stems. This also shows that the **-ɛ** is an affix and not part of the root of the colour terms. The associative extension expresses an association of the subject of the verb with a feature in the nominal stem from which the verb is derived. This associated feature is the colour in inchoative verbs attributing colour.

wɔd + ɥ + u + dɛ	>	**wojj-u-dɛ**	'to be(come) red'
ran + ɥ + u + dɛ	>	**rawn-u-dɛ**	'to be(come) white'
ɓal + ɥ + u + dɛ	>	**ɓawl-u-dɛ**	'to be(come) black'

Metathesis resulting in the consonant sequences **[wn]** and **[wl]** occurs to avoid a violation of the sonority hierarchy.

The associative verb stem can be used to form a deverbal adjective taking class suffixes of grade D. Thus, there are three stems for the colours white, red and black in the lexicon. All three forms require a different suffix form determined by the type of word formation involved. In this case the different suffix forms correspond to different syntactic categories. The difference between derivations from a nominal, an adjectival or from a verbal stem also implies a semantic difference: the description of an item, the description of a state or the description of a change in state.

Nominal stem:		Noun: (grade A; only NGE class)	
ran-	'white (cow)'	**ranɛ**	'white (cow)' (proper name)
wɔd-	'red (cow)'	**wɔdɛ**	'red (cow)' (proper name)
ɓal-	'black (cow)'	**ɓalɛ**	'black (cow)' (proper name)

Adjectival stem:		Adjective: (grade B; all classes)	
ranɛ-	'white'	**ranɛɛwɛ**	'(any) white (cow)'
wɔɗɛ-	'red'	**wɔɗɛɛwɛ**	'(any) red (cow)'
ɓalɛ-	'black'	**ɓalɛɛwɛ**	'(any) black (cow)'
Verbal stem:		Participle: (grade D; all classes)	
rawn-	'white(ned)'	**rawnu^{n}gɛ**	'whitened (cow), that has become white'
wɔjj-	'red(dened)'	**wojju^{n}gɛ**	'reddened (cow), that has become red'
ɓawl-	'black(ened)'	**ɓawlu^{n}gɛ**	'blackened (cow), that has become black'

The difference in morphological derivation of these three stems: nominal, adjectival, and verbal is important for the choice of the suffix form. The same stem in the same class also yields different semantic interpretations, depending on the word formation.

The word "cow" is put between parentheses in the translations because as such the word "cow" is not present in the words **ranɛ**, **ranɛɛwɛ** or **rawnu^{n}gɛ**. It is however understood in the meaning of the words and indicated by the presence of the NGE class denoting cows.

The adjectival stem **nayɛ-** 'old' and the related associative verb **naywudɛ** 'to be(come) old' suggests an etymology which is similar to that of adjectival colour terms in Fulfulde. The full noun which forms the stem of this adjective is **nayɛ**. One of the informants translated the word **nayɛ** as 'old, when speaking of a cow'. Perhaps the adjective **nayɛ-** 'old' is based on the root **nay-** 'four', found in the numbers **nay-i**, **nay-on**, **nay-oy** 'four', and the class suffix **-ɛ** of the NGE class. Possibly this combination could have described a cow which has delivered four calves. A cow which calved four times is considered old shortly after that. When she has stopped giving milk it will be among the first animals that will be sold, because it is known to have troubles persisting in the dry season (Bonfiglioli 1981). Such a cow is quite mature and old. This meaning should then be applied metaphorically to creatures other than cows as well as cows. Something or someone that is old shares the feature of being considered old with a cow that has calved four times.

8.1.4 GRADE B : AGENTIVE NOMINAL

The agentive nominal in Fulfulde behaves morphologically like an adjective. The agentive nominal, like other adjectives, can occur in all classes. Like an adjective, the agentive nominal can be used as a modifier, and its pattern of initial consonant alternation is like that of adjectives.

The formation of the agentive nominal is very productive. It can be based on all verb stems in the active voice. The agentive nominal can not be formed from middle or passive voice verbs. This is consistent with the semantic content of the agentive nominal, because the subject of active verbs is always the agent. This is not the case with middle and passive verbs. The subject of the middle voice is both agent and patient. The subject of a verb in the passive voice is the patient.

The hypothesis is that, like the word formation of the other adjectives in Grade B, the agentive nominal is also a denominal word formation, based on a stem that is/was a full word. The vowel **-ɔɔ-** is a suffix form **-ɔ** of the 'O class, lengthened because of its merger with the grade marker ***ɥ** of grade B. In the following text from the story of Sillamakka and Pulloori (Seydou 1972:86) the agentive form **maayoowo** 'dying person' occurs with only the **-ɔɔ** suffix in the form **maayoo** with the same agentive meaning.

maayoo ladde walaa e maɓɓe say wuro
die-AGENTIVE bush be-N with of-them only village
'None of them met his death in the wilderness, only in the village.' (Seydou 1972:86)

The initial consonant alternation of the agentive nominal is different from the alternation as found in nouns (see section 3.1.3). The fluctuation of initial consonant alternation shows similarity with the alternation that occurs in adjectives. In general only plosive and continuant initial consonants occur. The classes NDI, BA, KA, NGU, KI which have a prenasalized initial consonant in nouns occur with a continuant initial consonant in agentive nominals. The difference is that when the agentive nominal occurs at the beginning of a noun phrase, it has the initial consonant from the continuant series and not from the prenasalized series. The classes 'DAM and KOY which have a plosive initial consonant in modifying adjectives occur with a prenasalized initial consonant in nouns. The forms are **ᵐbittoowoy** 'who are leaving' and **ᵐbittoojam** 'which is leaving' with a prenasalized initial consonant when the adjective is the head of a noun phrase and **bittoowoy** and **bittɔɔjam** when it is used as a modifier.

	'the one(s) speaking'	'the one(s) leaving'
'O	**kaalɔɔ-wɔ**	**bittɔɔ-wɔ**
'BE	**haalɔɔ-ɓɛ**	**wittɔɔ-ɓɛ**
NGEL	**kaaloo-wel**	**bittoo-wel**
KON	**kaaloo-woy**	**ᵐb, bittoo-woy**
NDE	**haalɔɔ-rɛ**	**wittɔɔ-rɛ**
NDI	**haaloo-ri**	**wittoo-ri**
NDU	**haaloo-ru**	**wittoo-ru**
NGA/BA	**haalɔɔ-wa**	**wittɔɔ-wa**
NGE	**haalɔɔ-wɛ**	**wittɔɔ-wɛ**
NGO	**haalɔɔ-wɔ**	**[wittɔɔ-wɔ]**
NGU	**haaloo-wu**	**wittoo-wu**
NGAL	**kaalɔɔ-wal**	**bittɔɔ-wal**
NGOL	**kaaloo-wol**	**bittoo-wol**
KOL	**kaaloo-wol**	**bittoo-wol**
KA	**haalɔɔ-wa**	**wittɔɔ-wa**
KI	**haaloo-wi**	**wittoo-wi**
KO	**haalɔɔ-wɔ**	**[wittɔɔ-wɔ]**
'DAM	**kaalɔɔ-jam**	**ᵐb, bittɔɔ-jam**
KAL	**[kaalɔɔ-wal]**	**[bittɔɔ-wal]**
'DUM	**kaaloo-jum**	**bittoo-jum**
'DE	**kaalɔɔ-jɛ**	**bittɔɔ-jɛ**
'DI	**kaaloo-ji**	**bittoo-ji**

Another difference between the agentive nominals and other adjectives is that the long vowel -ɔɔ- of agentive nominals does not shorten in the penultimate syllable, before a heavy syllable, i.e. before a class suffix with a CVC shape.

8.1.5 GRADE D: DEVERBAL ADJECTIVES

Participles are formed on verb stems which combine with one of the following verbal markers and a class suffix.

	active voice	middle voice	passive voice
incompletive aspect	*(agentive)*	**-ɔtɔɔ-**	**-ɛtɛɛ-**
completive aspect	**-u-** / Ø (zero)	**-ii-**	**-aa-**

The participle formed with the incompletive aspect marker of active voice verbs (which is **-an-** in other dialects) is not attested in the Maasina data. The derivation of the agentive nominal is used instead. Participles can be paraphrased as "that (of class X) which V". The following participles are formed with a suffix of the 'O class, and refer to a person. The verb stems are **lɔɔt-** 'wash' and **war-** 'come'.

	incompletive		completive	
active	*(agentive)*		**lootuɗɔ**	'who has washed'
			garɗɔ	'who has come'
middle	**lɔɔtɔtɔɔɗɔ**	'who washes himself'	**lootiiɗɔ**	'who has washed himself'
passive	**lɔɔtɛtɛɛɗɔ**	'who is washed'	**lɔɔtaaɗɔ**	'who has been washed'

The suffix forms of the deverbal adjectives are identical with the pronouns of these classes. Only the class marking for humans is different, the suffix is **-ɗɔ** but the pronoun of this class is **mɔ** in Maasina.

The majority of the adjectives are derived from a verb stem and take a suffix form of Grade D, the same suffix form which is used for participles. The hypothesis is that Grade D adjectives are in fact participles. These deverbal adjectives are nothing more than participles used as a modifier, following a noun in a noun phrase. The only adjective in Grade D whose base verb stem is not clear is the adjective **wɔʔ-** 'another' with an assimilating final consonant. Could it have been derived from **wɔɔd-** 'exist', or from **wal-/wɔn-** 'be', or from **wɔɗɗ-** 'be far'?

adjectival stem		verb stem	
wɔʔ-	'another'	—	
maw-	'big'	**mawn-udɛ**	'to be(come) big, to grow'
ŋarɗ-	'beautiful'	**ŋarɗ-udɛ**	'to be(come) beautiful'
wɔɔɗ-	'beautiful, good'	**wooɗ-udɛ**	'to be(come) beautiful, good'
waaw-	'mighty'	**waaw-dɛ**	'to be(come) able'
juut-	'long'	**juut-udɛ**	'to be(come) long'
sɛll-	'healthy'	**sell-udɛ**	'to be(come) healthy'
lɛɛf-	'wet'	**leef-udɛ**	'to be(come) wet'
tunn-	'dirty'	**tunn-udɛ**	'to be(come) dirty'
yɔɔr-	'dry'	**yoor-udɛ**	'to dry (up)'
haaɗ-	'bitter'	**haaɗ-udɛ**	'to be(come) bitter'
lamm-	'salty'	**lamm-udɛ**	'to be(come) salty'
wɛl-	'sweet, good'	**wɛl-dɛ**	'to be(come) sweet, good'

ɓuuɓ-	'cold'	**ɓuuɓ-udɛ**	'to be(come) cold'
wul-	'hot'	**wul-dɛ**	'to be(come) hot'
hɛɛw-	'many, much'	**hɛɛw-dɛ**	'to be(come) many, much'
sɛw-	'thin'	**sɛw-dɛ**	'to be(come) thin'
fɔɔɟ-	'meagre'	**fooɟ-udɛ**	'to be(come) meagre'
jaas-	'good for nothing'	**jaas-udɛ**	'to be(come) good for nothing'

Adjectival participles can also be formed with middle voice and passive voice verb stems.

voice	adjective/participle		verb	
middle	**taɲ-ii-**	'ugly'	**taɲ-aadɛ**	'to be(come) ugly'
middle	**dar-ii-**	'upright'	**dar-aadɛ**	'to stand'
middle	**ɓett-ii-**	'last'	**ɓɛtt-aadɛ**	'to pass'
middle	**jaŋ^{n}g-ɔtɔɔ-**	'readable'	**jaŋ^{n}g-aadɛ**	'to be readable'
passive	**waaw-ɛtɛɛ-**	'possible'	**waaw-ɛɛdɛ**	'to be possible'
passive	**jaa^{n}g-aa-**	'having cold'	**jaa^{n}g-ɛɛdɛ**	'to feel cold'

The following table shows some adjectives combining with all suffix forms of Grade D.

	'another'	'big'	'dry'	
'O	**gɔɗ-ɗɔ**	**maw-ɗɔ**	**[jɔɔr-ɗɔ]**	
'BE	**wɔɓ-ɓɛ**	**maw-ɓɛ**	**[yɔɔr-ɓɛ]**	
NGEL	**goŋ-^{n}gel**	**maŋ-^{n}gel**	**[joor-^{n}gel]**	
KOY	**^{n}g, gok-koy**	**maw-koy**	**[^{n}j, joor-koy]**	
NDE	**wɔn-^{n}dɛ**	**maw-^{n}dɛ**	**yɔɔr-^{n}dɛ**	
NDI	**^{n}g, won-^{n}di**	**maw-^{n}di**	**^{n}j, yoor-^{n}di**	
NDU	**won-^{n}du**	**maw-^{n}du**	**yoor-^{n}du**	
BA/NGA	**{^{n}g, wɔb-ba**	**maw-ba**	**^{n}j, yɔɔr-ba**	}centre Maasina
	{^{n}g, wɔŋ-^{n}ga	**maŋ-^{n}ga**	**^{n}j, yɔɔr-^{n}ga**	}rest
NGE	**wɔŋ-^{n}gɛ**	**maŋ-^{n}gɛ**	**yɔɔr-^{n}gɛ**	
NGO	**wɔŋ-^{n}gɔ**	**maŋ-^{n}gɔ**	**yɔɔr-^{n}gɔ**	
NGU	**^{n}g, woŋ-^{n}gu**	**maŋ-^{n}gu**	**[^{n}j, yoor-^{n}gu]**	
NGAL	**gɔŋ-^{n}gal**	**maŋ-^{n}gal**	**jɔɔr-^{n}gal**	
NGOL	**goŋ-^{n}gol**	**maŋ-^{n}gol**	**joor-^{n}gol**	
KOL	**goŋ-kol**	**maw-kol**	**joor-kol**	
KA	**^{n}g, wɔk-ka**	**maw-ka**	**^{n}j, yɔɔr-ka**	
KI	**^{n}g, wok-ki**	**maw-ki**	**^{n}j, yoor-ki**	
KO	**wɔk-kɔ**	**maw-kɔ**	**yɔɔr-kɔ**	
'DAM	**^{n}g, gɔɗ-ɗam**	**[maw-ɗam]**	**^{n}j, jɔɔr-ɗam**	
KAL	**gɔk-kal**	**[maw-kal]**	**jɔɔr-kal**	
'DUM	**goɗ-ɗum**	**[maw-ɗum]**	**joor-ɗum**	
'DE	**gɔɗ-ɗɛ**	**maw-ɗɛ**	**jɔɔr-ɗɛ**	
'DI	**goɗ-ɗi**	**maw-ɗi**	**[joor-ɗi]**	

The pattern of the initial consonant alternation of deverbal adjectives or participles is similar to the distribution of the initial consonants of other adjectives. There is some fluctuation between a prenasalized initial consonant or a continuant initial consonant in words with the class prefixes of the NDI, BA, KA, NGU and KI classes. There is some fluctuation between a prenasalized initial consonant and a plosive initial consonant in words with the 'DAM and KOY classes. In both cases the prenasalized variant seems less preferred, sometimes even rejected. The distribution of the alternative forms depends again on the syntactic context.

ⁿgaari sellⁿdi	'healthy bull'
cellⁿdi	'healthy one'

The prenasalization seems to be used to introduce the noun phrase that is governed by a marker of the NDI class. There is no prenasalized initial consonant when the adjective is used as a modifier following the head noun.

8.2 PRONOUNS

The pronouns can be divided into two groups: personal pronouns and pronominal concords. Personal pronouns refer to and index the participants in the discourse, i.e. the discourse referents. Pronominal concords refer to a noun. Pronominal concords are formed with all twenty-two noun class concords in the Fulfulde of Maasina. Discourse referents are all pronouns that refer to a first or second person. The (subject forms of the) discourse referents are **mi** 'I', **ʔa** 'you sg.', **min** 'we exclusive', **ʔɛn** 1+2pl. 'we inclusive', and **ʔɔn** 'you pl.' (cf. Arnott 1970b, 1971).

In the first person plural, there is a distinction between the pronouns **min** 1pl. 'we exclusive' and **ʔɛn** 1+2pl. 'we inclusive'. The semantic difference is created by the inclusion or exclusion of the person to whom the speech is directed, the listener, usually the person adressed with **ʔa** 'you' 2sg. in the discourse. That is why the pronoun **ʔɛn** 'we inclusive addressee' is indicated as 1+2. The pronoun **ʔɛn** can refer to only the speaker (**mi** 'I') and the listener (**ʔa** 'you'), but it can also refer to more than just these two persons. Other persons who are either associated with the speaker or with the listener can also be included in the persons referred to with the pronoun **ʔɛn**. The pronoun **min** only refers to the speaker (**mi** 'I') and other persons associated with the speaker, but not with the listener (**ʔa** 'you'). The listener is excluded from the persons referred to with the pronoun **min**, that is the reason for calling this pronoun 'we exclusive'.

The marker **ɗum** is a pronominal concord. There are actually two paradigms of the marker **ɗum**, one is used to refer to names, relationship terms (without a class suffix), and unidentified persons, another paradigm (slightly different in form) is used to refer to unidentified things (see section 7.3.4).

The marker **ɗum** which refers to persons contrasts with the pronoun of the 'O class (denoting persons). These two pronouns can be used to make a difference between anaphoric and logophoric reference. This is illustrated in the following sentences.

kɔɔla	**wii**	**lɔnn-an-aa**	**ɗum**	**kaasa**	**mun**	**ka**
Kola$_i$	say-COM	wash-DAT-SUB-2sg	him$_i$	woollen cloth	his$_i$	the

'Kola$_i$ said you should wash for him$_i$ his$_i$ woollen cloth.'

kɔɔla wii lɔnn-an-aa mɔ kaasa makkɔ ka
Kola$_i$ say-COM wash-DAT-SUB-2sg him$_j$ woollen cloth his$_j$ the
'Kola$_i$ said you should wash for him$_j$ his$_j$ woollen cloth.'

The object pronoun **ɗum** [**ɗũ**] and the possessive pronoun **mum** [**mũ**] of the 'DUM class in the first sentence refer to **kɔɔla**, a name without a class suffix. The 'DUM class pronouns are co-referential with **kɔɔla**: Kola's woollen cloth should be washed for Kola. In the second sentence, the use of the forms of the pronouns **mɔ** and **makkɔ** (of the 'O class) expresses the fact that there is another person for whom Kola wants the woollen cloth (belonging to that other person) to be washed. The pronoun **mɔ** is not co-referential with the name **kɔɔla**. The difference between the 3rd person singular pronouns of the 'O class and the 'DUM class is summarized as follows:

'DUM class:	anaphoric with names of persons, inalienable relationship terms, also when subject is Ø (zero); not referring to persons indicated with a concord of the 'O class
'O class:	anaphoric with persons indicated with a class concord of the 'O class; not referring to persons presented by names, inalienable relationship terms, or when subject is Ø (zero)

The following examples with the possessive pronouns **-um** ('DUM class) and **-iikɔ** ('O class) found in relationship terms list all possible combinations of reference and non-reference.

Ø ('DUM)$_i$ + **-kɔ** ('O)$_j$:
baaba fii ɓiy-ii-kɔ
father$_i$ beat-COMPL child-of-him$_j$
'Father$_i$ has beaten his$_j$ (s.o. elses) child.'

mɔ ('O)$_i$ + **-um** ('DUM)$_j$:
mɔ fii ɓiy-um
he$_i$ beat-COMPL child-of-him$_j$
'He$_i$ has beaten his$_j$ (s.o. elses) child.'

mɔ ('O$_i$ + **-kɔ** ('O)$_i$:
mɔ fii ɓiy-ii-kɔ
father$_i$ beat-COMPL child-of-him$_i$
'He$_i$ has beaten his$_i$ (own) child.'

Ø ('DUM)$_i$ + **-um** ('DUM)$_i$:
baaba fii ɓiy-um
father$_i$ beat-COMPL child-of-him$_i$
'Father$_i$ has beaten his$_i$ (own) child.'

The generalization on the co-reference of these pronouns is only disturbed by the fact that the pronoun **ɗum** can sometimes refer to nouns formed with a suffix of the 'O class.

The forms of the pronouns do not show much variation. In general the pronouns have the same form in different syntactic functions, notably as subject and as object pronouns. There are subject, object, locative, possessive and independent pronouns. In addition, the pronominal concords can form demonstrative and interrogative words. The pronominal forms are independent words. They are usually unstressed. The independent pronouns, demonstratives, and interrogatives are stressed words.

8.2.1 SUBJECT PRONOUNS

The subject pronouns have the following forms when they refer to a noun in one of the twenty-two noun classes.

Pronominal object concords:

'O	**mɔ** or **ʔɔ**	NGA/BA	**ba** in centre of Maasina, **ⁿga** elsewhere
'BE	**ɓɛ**	NGE	**ⁿgɛ**
NGEL	**ⁿgel**	NGO	**ⁿgɔ**
KOY	**koy**	NGU	**ⁿgu**
NDE	**ⁿdɛ**	NGAL	**ⁿgal**
NDI	**ⁿdi**	NGOL	**ⁿgol**
NDU	**ⁿdu**	'DAM	**ɗam**
KA	**ka**	KAL	**kal**
KI	**ki**	'DUM	**ɗum** (things), Ø (persons)
KO	**kɔ**	'DE	**ɗɛ**
KOL	**kol**	'DI	**ɗi**

The subject pronoun of the 'O class in Maasina is mostly **mɔ**, sometimes the near demonstrative **ʔɔɔ** can function as the subject. The subject pronoun **ʔɔ** (which is the form in other dialects) is understood in Maasina but not frequently used. The class concords BA and NGA refer to the same nouns, the distribution of this dialectal variation of the form of the concord is discussed in section 7.2.14.

The personal subject pronouns have two different forms. The subject pronoun in a normal SVO sentence differs from the subject pronoun which is a verbal affix in a sentence with a V-SPro order.

Subject forms of discourse referents as separate words in SV order sentences:

singular:	1	**mi**	'I'
	2	**ʔa**	'you (sg.)'
plural:	1	**min**	'we (excl.)'
	1+2	**ʔɛn**	'we (incl.)'
	2	**ʔɔn**	'you (pl.)'

Some of the subject pronouns are suffixed in particular verbal conjugational categories: the relative and the subjunctive categories. The following table shows the subject pronominal affixes (and the personal pronouns that are not affixed in these conjugational categories).

		REL 1	REL 2	SUB 1	SUB 2
singular	1	**...-mi**	**...-mi**	**mi**	**mi**
	2	**...-ɗaa**	**...-aa**	**...-ɗaa**	**...-aa**
plural	1	**min**	**min**	**min**	**min**
	1+2	**...-ɗɛn**	**...-ɛn**	**...-ɗɛn**	**...-ɛn**
	2	**...-ɗɔn**	**...-ɔn**	**...-ɗɔn**	**...-ɔn**

REL 1: relative completive and middle and passive voice relative incompletive
REL 2: active voice relative incompletive
SUB 1: middle and passive voice subjunctive
SUB 2: active voice subjunctive

A hyphen preceding the pronominal form indicates that the subject pronoun has been inverted. The underlying forms of the inverted subject pronouns **-ɗaa** 'you sg.' **-ɗɛn** 'we incl.' and **-ɗɔn** 'you pl.' have an initial consonant [**ɗ**] which is lost after the verbal marker ***at** of the active voice relative incompletive marker (REL 2), and after the consonant final verb stem in the subjunctive (SUB 2). In all other inverted forms, the inverted subject pronoun is (mostly) preceded by a vowel.

8.2.2 OBJECT PRONOUNS

The forms of the pronominal object concords are similar to the forms of the pronominal subject concords. Only the object pronoun of the 'DUM class referring to persons differs from the form of the subject pronoun.

Pronominal object concords:

'O	**mɔ** or **ʔɔ**	NGA/BA	**ba** in centre of Maasina, **ⁿga** elsewhere
'BE	**ɓɛ**	NGE	**ⁿgɛ**
NGEL	**ⁿgel**	NGO	**ⁿgɔ**
KOY	**koy**	NGU	**ⁿgu**
NDE	**ⁿdɛ**	NGAL	**ⁿgal**
NDI	**ⁿdi**	NGOL	**ⁿgol**
NDU	**ⁿdu**	'DAM	**ɗam**
KA	**ka**	KAL	**kal**
KI	**ki**	'DUM	**ɗum** (things), **mum** (persons)
KO	**kɔ**	'DE	**ɗɛ**
KOL	**kol**	'DI	**ɗi**

When the personal pronouns occur in object position, it is only the singular discourse referents which have a form which differs from the subject form. The following table shows the object forms of personal pronouns.

singular	1	**kam**	**-am**
	2	**maa**	**-ɛ**
plural	1	**min**	
	1+2	**ʔɛn**	
	2	**ʔɔn**	

The first and the second person singular have different forms in combination with certain conjugations. The forms **kam** 'me' and **maa** 'you' are unstressed independent words. The forms **-am** 'me' and **-ɛ** 'you' are suffixed to certain verb forms. The clitic object pronoun **-am** 'me' is only found in combination with the singular imperative form.

ʔacc-am hakkɛ
leave-IMPsg-me sins
'Pardon me.' [lit: leave me my sins]

In combination with all other conjugations, the object pronoun for the first person singular is **kam** 'me'.

ʔacc-ɔn-ɔn kam hakkɛ
leave-DAT-SUB-you me sins
'You(pl) should forgive me.'

nɛl-d-aa kam
send-COM-SUB-you me
'You should send it to me.'

ʔa yaaf-ɔtɔ kam
you forgive-M.INCOMPL me
'You will forgive me.'

ʔaɗa ɓad-ii kam
LOC-you be close-M.R.INCOMPL me
'You are close to me.'

The object forms **mi** or **mmi** 'me' that occur in Kaceccereere, (McIntosh 1984:256) do not occur in Maasina. The object pronoun **-ɛ** 'you' combines with active verb forms which are conjugated with verbal markers of the subjunctive, the incompletive, the relative incompletive or the exhortative conjugations.

mi ⁿdaart-ɛn-ɛ ⁿdɛ
I search-DAT-SUB-you it
'I should look for it for you.'

hɔnɔ mɔ wiʔ-ɛt-ɛ
how he/she say-R.INCOMPL-you
'How does he call you?'

miɗɔ tɔr-r-ɛ
I-LOC trouble-INT-SUB-you
'I am troubling you.'

yɔ ʔalla rɛɛn-ɛ
that Allah protect-EXH-you
'May Allah protect you.'

mi fill-ɛn-t-ɛ
I tell-DAT-INCOMPL-you
'I will tell you.'

Either the object pronouns **maa** or **-ɛ** can both occur when the subjunctive verb form is preceded by a locative subject pronoun.

ʔekoy ᵐbɛl-ɛ
LOC-they be sweet-SUB-you
'They are sweet for you.'

ʔekoy ᵐbɛl-maa
LOC-they be sweet-SUB-you
'They are sweet for you.'

The object pronoun **maa** is found in combination with all other conjugations. In the following sentences the pronoun **maa** 'you' is an independent (although unstressed) word.

dɛbbɔ loot-ii maa
woman wash-COMPL you
'The woman has washed you.'

mɔ ʔanⁿd-aa maa
he/she know-N you
'He doesn't know you'

The object pronoun **maa** is not part of the verbal words in the above examples. The stress falls on the last heavy syllable in the verb, in this case on the [**ii**] in **lootii** 'has washed' and on the [**aa**] in **ʔanⁿdaa** 'doesn't know'. Another indication of the separate word status of **maa** 'you' is its vowel length. After the verb stem only one long vowel is allowed in the verbal word. The long form **maa** remains long because it is not within the verbal word.

It is however possible for the object pronoun **maa** to be a verbal clitic. The object pronoun -**maa** is clitic when it precedes an inverted subject pronoun, as in the following sentences where it occurs in a VOS morpheme order in the verbal word.

V O S
pill-am-maa-mi
tell-DAT-R.COMPL-you-I
'I have told you'

V O S
maⁿdɛ ⁿdokk-u-maa-mi..
when give-R.COMPL-you-I
'When have I given you ..'

In Maasina, no verbal forms have been found where the object pronoun **maa** is shortened. In this respect the pronoun **maa** 'you' behaves differently in Kaceccereere (McIntosh 1984:210), where it is shortened in some verbal forms.

There is a variation in the forms of the concordial object pronouns of the 'O class **mɔ** and **moo** 'he/she/it'. The same variation in length also does occur in Kaceccereere (McIntosh 1984:199). The long form **moo** in Maasina occurs only in the relative completive and the relative incompletive verbal conjugations which combine with the inverted subject pronoun **mi** 'I'. The clitic pronoun -**moo**- 'him/her/it' can be found in the following sentences where the verbs have two pronominal affixes in a VOS morpheme order.

kɔ ʔanⁿd-ir-moo-mi lebbi tati
that know-CIR-R.COMPL-him-I months three
'It is three months that I have known him.'

maⁿdɛ ⁿdokk-u-no-moo-mi ɗum
when give-R.COMPL-PAST-him-I it
'When had I given it to him?'

ɗɔɔ ⁿjog-i-moo-mi
here hold-M.R.COMPL-him/her/it-I
'It is here that I held it.'

The hypothesis is that the length of the vowel in the object pronoun -**moo**- is caused by the underlying (assimilating) vowel which is used to mark relative conjugations. In Maasina, no examples are found where **mɔ** 'him/her/it' is a clitic object in a VOS-form of the relative incompletive. In the following sentences the pronoun **mɔ** 'him/her/it' is an independent (unstressed) word.

ɗɔɔ naŋⁿg-u-nɔ-ɗaa mɔ
here catch-R.INCOMPL-PAST-you him
'It's here that you had caught him.'

ɗɛɛ kullɛ kɔkk-an-noo-mi mɔ
these things give-R.INCOMPL-PAST-I him
'It is these things that I would give him.'

The object pronoun **mɔ** in the above example is not part of the verbal word. The pronoun **mɔ** 'him/her/it' is a separate word in all conjugations other than the relative completive, and in combination with all other inverted subject pronouns other than the inverted subject **mi** 'I'.

8.2.3 LOCATIVE PRONOUNS

The subject pronouns can combine with a locative marker to form the locative pronouns (cf. Ard 1979, Miyamoto 1989, Endresen 1993a).

Locative pronominal concords:

'O	**ʔɔmɔ**	NGAL	**ʔɛⁿgal**
'BE	**ʔɛɓɛ**	NGOL	**ʔeⁿgol**
NGEL	**ʔeⁿgel**	KA	**ʔɛka**
KOY	**ʔekoy**	KI	**ʔeki**
NDE	**ʔɛⁿdɛ**	KO	**ʔɛkɔ**
NDI	**ʔeⁿdi**	KOL	**ʔekol**
NDU	**ʔeⁿdu**	'DAM	**ʔɛɗam**
NGA/BA	**ʔɛba** or **ʔɛⁿga**	KAL	**ʔɛkal**
NGE	**ʔɛⁿgɛ**	'DUM	**ʔeɗum**
NGO	**ʔɛⁿgɔ**	'DE	**ʔɛɗɛ**
NGU	**ʔeⁿgu**	'DI	**ʔeɗi**

ıe locative pronominal concords are a combination of the pronominal subject concords and e preposition **ʔɛ** 'with'. The locative personal pronouns are formed by the personal subject onouns, to which a locative morpheme is added, either **ʔɛ** 'with' preceding the subject onoun, or a form like **ɗɛ**, **ɗɛn**, **ɗɔn**, following the subject pronoun.

Locative personal pronouns:

singular	1	**miɗɔ, miɗɛ**	plural	1	**miɗɛn, mɛɗɛn**
	2	**ʔaɗa**		1+2	**ʔɛɗɛn**
				2	**ʔɔɗɔn**

here is some variation in the locative form of the first person singular. The form **miɗɔ** is ıost frequently used. The form **miɗɛ** is used more in Haayre than in Maasina. Both **miɗɛn** nd **mɛɗɛn** 'we incl.' are heard in Mopti, although **miɗɛn** is the frequent form. The form **ana** is used in the same context to express location when the subject pronoun is zero, ossibly preceded by a noun phrase. It is the locative copula (see section 5.6.1.2).

The locative pronouns are often called the "long forms" of the subject pronouns Fagerberg 1984:292). Here they are called locative pronouns because of their use in locative redication.

ʔɔmɔ bamakɔ	'He is in Bamako.'
ʔeⁿdi ley wowru	'It (e.g. flour) is in the mortar.'
ʔeɗi ley laddɛ	'They (e.g. cows) are in the bush.'

In combination with conjugated verbs, the use of the locative pronouns expresses duration, i.e. the fact that the event described by the verb takes place over a long span of time.

8.2.4 POSSESSIVE PRONOUNS: ALIENABLE AND INALIENABLE

In a genitive construction, it is the possessed item which precedes the possessor. There is no genitive marker between two nouns in a genitive construction. The different letters (a), (b) and (c) refer to the two parts that can be pronominalized in a genitive construction. The pronominal form (a) refers to the possessed. The form (b) pronominalizes an alienable possessor, whereas the (c) forms are special forms for possessors in an inalienable genitive construction.

barma fanta	'the cooking pot of Fanta'
mɔ fanta	'that (a) of Fanta'
suudu makkɔ	'her (b) house' [lit: 'the house of her (b)']
baaba fanta	'the father of Fanta'
mɔ fanta	'the one (a) of Fanta'
baabiikɔ	'her (c) father' [lit: 'the father related to her (c)']

(a) pronominalization of possessed
(b) pronominalization of alienable possessor
(c) pronominalization of inalienable possessor

In a genitive construction the possession is pronominalized as the relative pronoun (a) which is identical in form to the subject and object pronoun. The possessor can be pronominalized in two ways. The possessor in alienable genitive constructions, i.e. when the first noun (the possessed item) is not a relationship term, is pronominalized as in (b). The alienable possessive pronouns (b) are formed with the pronominal concord preceded by a genitive marker **maC-**. In inalienable genitive constructions, i.e. when the noun possessed is a relationship term, the possessive pronoun is a suffix added to the noun preceded by a morpheme **-ii-**. This possessive pronominal suffix (c) does not cause initial consonant alternation on the stem to which it is attached. The pronominal forms under (b) and (c) are the alienable and the inalienable possessive pronouns respectively.

	(a)	(b)	(c)
'O	**mɔ**	**mak-kɔ**	**-ii-kɔ**
'BE	**ɓɛ**	**maɓ-ɓɛ**	**-ii-ɓɛ**
NGEL	**ⁿgel**	**mag-gel**	**-ii-gel**
KOY	**koy**	**mak-koy**	**-ii-koy**
BA	**ba**	**mab-ba**	**-ii-ba**
KO	**kɔ**	**mak-kɔ**	**-ii-kɔ**
NDE	**ⁿdɛ**	**may-rɛ**	**-ii-rɛ**
NDI	**ⁿdi**	**may-ri**	**-ii-ri**
NDU	**ⁿdu**	**may-ru**	**-ii-ru**
NGE	**ⁿgɛ**	**mag-gɛ**	**-ii-gɛ**
NGO	**ⁿgɔ**	**mag-gɔ**	**-ii-gɔ**

	(a)	(b)	(c)
NGU	**ⁿgu**	**mag-gu**	**-ii-gu**
NGAL	**ⁿgal**	**mag-gal**	**-ii-gal**
NGOL	**ⁿgol**	**mag-gol**	**-ii-gol**
KA	**ka**	**mak-ka**	**-ii-ka**
KI	**ki**	**mak-ki**	**-ii-ki**
'DAM	**ɗam**	**maj-ji**	**-ii-jam**
KAL	**kal**	**mak-kal**	**[-ii-kal]**
'DUM (things)	**ɗum**	**maj-jum**	**-ii-jum**
'DUM (persons)	**(mɔ)**	**mum (muuɗum)**	**-um**
'DE	**ɗɛ**	**maj-jɛ**	**-ii-jɛ**
'DI	**ɗi**	**maj-ji**	**-ii-ji**

The inalienable possessive forms (c) are added to the stem of relationship terms. Mohamadou (1985:149) includes the construction given under (c) among the adjectives. The formation of this genitive construction of relationship terms is indeed very similar to that of adjectives.

nɛɗɗɔ ʔe miŋ-ii-kɔ	'the person and his younger sibling'
naggɛ ʔe miŋ-ii-gɛ	'the cow and her younger sibling'
rawaaⁿdu ʔe miŋ-ii-ru	'the dog and his younger sibling'

The above formation is similar to adjectives in that it is formed by a stem to which a concord of all classes can be added. However, the main function of the class concord is the pronominalization of the possessor. The concord occurring in these constructions denotes the noun that is modified (nomen regens=possessed). This makes the genitive construction distinct form the adjectives. The concord here is acting as a pro-noun, it replaces the full noun that is the nomen rectum (possessor).

The personal possessive pronouns can have different forms, depending on the combination with an inalienable relationship term, or with an alienable noun.

Possessive personal pronouns:

		(b)	(c)
singular	1	**-am**	**ʔam**
	2	**-a**	**maa (maaɗa)**
plural	1		**ʔamɛn, ʔamin**
	1+2	**-ɛn**	**mɛn (mɛɛɗɛn)**
	2	**-ɔn**	**mɔn (mɔɔɗɔn)**

The alienable possessive forms (c) of the personal pronouns can have a long or a short form. The long forms which are not used frequently in Maasina are given between parentheses. The inalienable possessive forms (b) are added to the stem of relationship terms.

ʔinn-am wari	'my mother has come'
mawn-am wari	'my elder sibling has come'
ɟɛɛk-a wari	'your sibling-in-law has come'

gɔr-a wari	'your husband has come'
miŋ-a wari	'your younger sibling has come'
miŋ-ii-kɔ wari	'his younger sibling has arrived'

Some relationship terms lose their final vowel [**a**] when they combine with some of the possessive forms for alienable nouns.

baaba bɔɔkari	'father of Bookari'
ʔabba bɔɔkari	'father of Bookari'
ʔinna bɔɔkari	'mother of Bookari'
maama bɔɔkari	'grandparent of Bookari'

baammaa	'your father'	
ʔabba maa	'your father'	
ʔinna maa	'your mother'	
maammaa	'your grandparent'	
baammakkɔ	'his/her father'	better: **baabiikɔ**
maammakkɔ	'his/her grandparent'	better: **maamiikɔ**

Relationship terms only contract with the alienable possessive pronouns **maa** 'your' when they end in the vowel [**a**]. The form **maa** 'your' is used, because the form **baab-a** 'your father' with the inalienable possessive **-a** 'your' cannot be distinguished from the form **baaba** 'father' without a possessive pronoun. By analogy, the alienable possessive **makkɔ** 'his/her' is sometimes used instead of the inalienable possessive **-iikɔ** 'his/her', although the latter form is said to be more correct.

8.2.5 INDEPENDENT PRONOUNS

The independent pronouns are used in topic clauses, which are adjuncts to the main clause, and also when a pronoun is focused within a sentence. The independent pronouns in the following sentences are underlined.

topic:	**<u>ʔaan</u>, ʔa bɔnɗɔ**	'You, you are bad.'
	<u>kaŋkɔ</u>, mɔ warii	'He, he has come.'
focus:	**<u>ʔaan</u> jali**	'It is you who has laughed.'
	<u>kaŋkɔ</u> warata	'It is him who will come.'

The independent pronouns can be formed by adding the morpheme **kam** to the subject pronoun. This morpheme is the same as the topic marker **kam**, roughly translated as 'concerning X'. The independent forms of the pronominal concords are given in the following table.

Independent concordial pronouns:

'O	**kaŋkɔ**	NGU	**kaŋⁿgu**
BE	**kamɓɛ**	NGAL	**kaŋⁿgal**
NGEL	**kaŋⁿgel**	NGOL	**kaŋⁿgol**
KOY	**kaŋkoy**	KA	**kaŋka**
BA/NGA	**kamᵐba** or **kaŋⁿga**	KI	**kaŋki**
KO	**kaŋkɔ**	KOL	**kaŋkol**
NDE	**kayrɛ**	'DAM	**kaɲⁿjam**
NDI	**kayri**	KAL	**kaŋkal**
NDU	**kayru**	'DUM	**kaɲⁿjum** (things), **kaɲum** (persons)
NGE	**kaŋⁿgɛ**	'DE	**kaɲⁿjɛ**
NGO	**kaŋⁿgɔ**	'DI	**kaɲⁿji**

A number of personal independent pronouns have the same formation as the referential demonstratives, with a similar meaning "concerning the one referred to". The independent pronouns **miin** 'I', **ʔaan** 'you', **minin** 'we excl.', **ʔɛnɛn** 'we incl.' and **ʔɔnɔn** 'you pl.' are formed by the personal (subject) pronoun followed by a vowel that assimilates to the features of the preceding vowel and a final nasal [**n**]. The following table lists the independent forms of the personal pronouns.

Personal independent pronouns:

singular	1	**miin**	plural	1	**minin**
	2	**ʔaan**		1+2	**ʔɛnɛn**
				2	**ʔɔnɔn**

The referential demonstratives of the 'O class and the 'BE class **ʔɔɔn** and **ɓɛɛn** are not used as independent subject pronouns, instead the forms based on the morpheme **kam** are used.

8.3 DEMONSTRATIVES

The Maasina dialect has four series of demonstratives, the simple, near, far and referential demonstratives. The demonstratives are formed by the pronominal concords of the twenty-two noun classes. The referential pronouns have a very limited distribution in Maasina, they are only attested for a few classes. Each demonstrative can form a noun phrase by itself. When the demonstrative modifies a noun it will generally follow that noun. Only the simple demonstrative can both follow or precede the noun, as shown in the following two sentences.

mi yii ⁿdɛɛ huuⁿdɛʔ	'I have seen that thing.'
mi yii huuⁿdɛ ⁿdɛɛʔ	'I have seen the thing.'

There is a slight difference in meaning between the two sentences above. When the simple demonstrative follows the noun, its meaning is less strong, less deictic, it functions more as a definite article. When it precedes the noun, the meaning of the simple demonstrative is stronger, it functions as a true deictic demonstrative. The formation of the different

demonstratives on the basis of the pronominal consonant is represented in the following three formulas.

simple demonstrative:	Cd-(V_i)-(ʔ)	specification
near demonstrative:	Cd-(V_i)-**ga**	proximity
far demonstrative:	Cd-(V_i)-**to**-(ʔ)	non-proximity
referential demonstrative:	Cd-V_i-**n**	talked about

The simple demonstrative is formed by adding a vowel which assimilates to the vowel of the concord. However, when the vowel of the concord occurs in a closed syllable, the vowel is not lengthened to form the demonstrative. The simple demonstrative has the same form as the pronominal concords with a CVC shape. The hypothesis is that vowel lengthening has occurred, just as it happens in the case of the pronominal concords with a CV shape, but that the vowel has been shortened in a closed syllable. This is another indication that a CVVC syllable is a marginal syllable structure.

Both the simple demonstrative, expressing specification, and the far demonstrative, expressing non-proximity, are marked by final glottality. The final glottality is realized as either a final glottal stop or as laryngealization of the final vowel and is only realized before a pause. The absence of final glottality in the near demonstrative will generally mean that the final vowel of an utterance is devoiced before a pause.

	simple	near	far
'O	**ʔɔɔ**	**ʔɔɔga**	**ʔooto**
'BE	**ɓɛɛ**	**ɓɛɛga**	**ɓeeto**
NGEL	**ⁿgel**	**ⁿgelga**	**ⁿgelto**
KAL	**kal**	**kalga**	**kalto**
KOY	**koy**	**koyga**	**koyto**
NDE	**ⁿdɛɛ**	**ⁿdɛɛga**	**ⁿdeeto**
NDI	**ⁿdii**	**ⁿdiiga**	**ⁿdiito**
NDU	**ⁿduu**	**ⁿduuga**	**ⁿduuto**
BA/NGA	**baa** or **ⁿgaa**	**baaga** or **ⁿgaaga**	**baato** or **ⁿgaato**
NGE	**ⁿgɛɛ**	**ⁿgɛɛga**	**ⁿgeeto**
NGO	**ⁿgɔɔ**	**ⁿgɔɔga**	**ⁿgooto**
NGU	**ⁿguu**	**ⁿguuga**	**ⁿguuto**
NGAL	**ⁿgal**	**ⁿgalga**	**ⁿgalto**
NGOL	**ⁿgol**	**ⁿgolga**	**ⁿgolto**
KA	**kaa**	**kaaga**	**kaato**
KI	**kii**	**kiiga**	**kiito**
KO	**kɔɔ**	**kɔɔga**	**kooto**
'DAM	**ɗam**	**ɗamⁿga**	**ɗamto**
'DUM	**ɗum**	**ɗuŋⁿga**	**ɗunto**
'DE	**ɗɛɛ**	**ɗɛɛga**	**ɗeeto**
'DI	**ɗii**	**ɗiiga**	**ɗiito**

The words **ga** and **to** also occur as independent locative adverbs meaning 'here' and 'there'. The far demonstrative can be realized as a two word sequence, in which case no ATR harmony occurs.

mi yii huu^{n}dɛ ^{n}deeto^{ʔ}	'I saw that thing (there)'	("j'ai vu cette chose là bas")
mi yii huu^{n}dɛ ^{n}dɛɛ to^{ʔ}	'I saw the thing there'	("j'ai vu la chose là bas")

The far demonstrative **^{n}deeto^{ʔ}** 'that there' is one word, originating form two words **^{n}dɛɛ** 'this' and **to** 'there'. In the second sentence there is a word boundary between the simple demonstrative **^{n}dɛɛ** 'this' and the adverb of place **to** 'there' which blocks ATR harmony. The simple demonstrative following the noun, in combination with the adverb of place **to** results in the translation equivalent of **^{n}dɛɛ** as the definite article "the". The far demonstrative **^{n}deeto** has a more prominent deictic meaning, as exemplified in the first sentence.

The adverb **ga** 'here' can in principle also follow the simple demonstrative as a separate word. The difference is less clear, because vowel harmony does not show the word boundary. The referential demonstrative is not used much in Maasina. Only four classes were attested with the referential form. This is different from other dialects.

Referential demonstratives:

ʔɔ	**ʔɔɔn, ʔɔn**	
ɓɛ	**ɓɛɛn, ɓɛn**	
ɗi	**ɗiin, ɗin**	
ɗɛ	**ɗɛɛn, ɗɛn**	
^{n}dɛ	**^{n}dɛɛn, ^{n}dɛn**	'at that time, then'

The referential demonstrative forms an excessively heavy CVVC syllable which is often shortened to CVC. The referential occurs not as a modifier of a noun, but as a pronoun, referring back to the noun already mentioned earlier in the discourse.

ʔɔɔn wiy-an-i mɔ, ʔɛɓɛ taw-ɛɛ ʔɛ dɛɛɗɛ ɗɛɛ kala
RDEM say-DAT-R.COMPL him LOC-they find-P.SUB at quarters DEM each
'He (the one talked about) said to him that they are found in each of these quarters.'

ɗin baŋaaji ʔana famɗ-i kɔ ʔan^{n}d-an-i wurɔ sannɛ
RDEM cowbirds LOC be small-R.COMPL what know-DAT-R.COMPL village much
'These herdsmen (talked about) know little about the village.'

ɓɛn ʔana ^{m}baaw-i naŋ^{n}g-udɛ yɔgaaaɓɛ hɛn
RDEM LOC be able-R.COMPL catch-INF some people in
'They (talked about) can catch some among them.'

In other classes it is the simple demonstrative which is used to indicate reference.

8.4 INTERROGATIVES

The interrogative forms for 'which/who/what' can occur on their own in a noun phrase or as a modifier following a noun.

hɔmɔ wari	'Who came?'
hɔⁿgɛ wari	'Which one (cow) came?
wakkati hɔmɔ ⁿjogiɗaa	'What time do you have?
naggɛ hɔⁿgɛ wari	'Which cow came?'
hoɗum ⁿjiɗɗaa	'What do you want?'

The interrogative forms of some classes have a special meaning: they function as the following question words, possibly, but not necessarily preceded by the morpheme ***hɛ-** or ***hɔ-** marking the interrogative forms. The following table lists the forms of the question words that occur in Maasina.

hɔ-	+ 'O class concord:	**hɔ-mɔ**	'who'
hɔ-	+ 'DUM class concord:	**ho-ɗum**	'what'
ma-	+ NDE class concord:	**ma-ⁿdɛ**	'when'
hɔ-	+ adverb **to** 'there':	**ho-to**	'where'
hɔ-	+ adverb **nɔ** 'thus':	**hɔ-nɔ**	'how'

These words do not show final glottality when they occur before a pause. This is because questions never end in final glottality. There is some dialectal variation in the form of the interrogative 'which' within Maasina where the following forms are found.

	centre of Maasina, Kunaari	Gimballa		centre of Maasina, Kunaari	Gimballa
'O	**hɔmɔ**	**hɔmɔ**	NGO	**hɔⁿgɔ**	**hɛⁿgɔ**
'BE	**hɔɓɛ**		NGU	**hoⁿgu**	**heⁿgu**
NGEL	**hoⁿgel**	**heⁿgel**	NGAL	**hɔⁿgal**	**hɛⁿgal**
KOY	**hokoy**		NGOL	**hoⁿgol**	**heⁿgol**
BA	**hɔba**	—	KA	**hɔka**	**hɛka**
NGA	—	**hɛⁿga**	KI	**hoki**	**heki**
KO	**hɔkɔ**	**hɛkɔ**	'DAM	**hɔɗam**	**hɛɗam**
NDE	**hɔⁿdɛ**	**hɛⁿdɛ**	KAL	**hɔkal**	**hɛkal**
NDI	**hoⁿdi**	**heⁿdi**	'DUM	**hoɗum**	**heɗum, hoɗum**
NDU	**hoⁿdu**	**heⁿdu**	'DE	**hɔɗɛ**	**hɛɗɛ**
NGE	**hɔⁿgɛ**	**hɛⁿgɛ**	'DI	**hoɗi**	**heɗi**

The nasal consonant in final position is deleted, leaving a nasalized vowel, like in [**heɗũ**] or [**hoɗũ**] 'what'. Vowels which are adjacent to laryngealized consonants become laryngealized, as in **hɛɗɛ** or **hɔɗɛ** 'which'. The dialectal variation of these interrogative forms is geographically distributed. In the center of Maasina (Tenenku, Toggere Kumba) and in Kunaari the initial vowel is [ɔ] or [o], depending on the ATR value of the vowel in the

concord. In Gimballa the initial vowel of this word is [ɛ] or [e], depending on the ATR value of the vowel in the concord. But the form for the 'O class is **hɔmɔ** in all dialects of Maasina. Possibly the vowel of the suffix spread to the first syllable of the word.

nɛɗɗɔ hɔmɔ 'which person'

When asking for the specification of a certain noun, these interrogative words follow the head noun.

8.5 NUMERALS

The number 'one' is one of the cardinal numbers which is expressed by two words. The form **gɔʔɔ** is the name of the number one, used in counting without reference to objects. The adjectival stem **wɔɔt-** 'one, a certain, a' is used to indicate that the number of objects counted is one. The adjectival stem **wɔɔt-** 'one' agrees in concord with the nominal classes of all the (singular) classes. It is also used to express indefinite reference. This choice of the suffix form of this word is identical to that of the basic adjectives. The initial consonant of the stem **wɔɔt-** alternates with [**g**] and [^{n}**g**] depending on the class of the suffix. This fluctuation of the initial consonant alternation is identical to the variation found in adjectives. Numerals, like adjectives, follow the noun. The combination of plural suffixes with this same stem **wɔɔt-** meaning 'some', as in other dialects, is not attested in Maasina, instead the adverb **sɛɛɗa** is used to express 'some' as in **yimɓɛ sɛɛɗa** 'some, a few people'.

The adjectival forms of **wɔɔt-** 'one':

'O	**gɔɔtɔ**	NGAL	**gɔɔtal**
'BE	—	NGOL	**gootol**
NGEL	**gootel**	KA	**wɔɔta, ^{n}gɔɔta**
KOY	—	KI	**wooti, ^{n}gooti**
NDE	**wɔɔtɛrɛ**	KOL	**gootol**
NDI	**wootiri, ^{n}gootiri**	KO	—
NDU	**wooturu**	'DAM	**^{n}gɔɔtam**
NGA/BA	**wɔɔta, ^{n}gɔɔta**	KAL	—
NGE	**wɔɔtɛ**	'DUM	**gootum**
NGO	**wɔɔtɔ**	'DE	—
NGU	**wootu, ^{n}gootu**	'DI	—

The plural, mass, and collective classes cannot combine with the word 'one' for semantic reasons. The other numerals have a more restricted possibility of agreement with the head noun. When referring to human beings, the suffix **-ɔ**, **-ɔm** or **-ɔn** [ɔ̃] is attached to the numeral. The forms are also prenasalized.

	counting form	things, animals	people	plural diminutive
1	**gɔʔɔ**	—	—	—
2	**ɗiɗi**	**ɗiɗi**	**ɗiɗɔ̃**	**ɗiɗoy**
3	**tati**	**tati**	**tatɔ̃**	**tatoy**
4	**nay, nayi**	**nay, nayi**	**nayɔ̃**	**nayoy**
5	**jɔy, joyi**	**jɔy, joyi**	**ⁿjɔyɔ̃**	**ⁿjoyoy**
6	**jɛɛgɔm**	**jɛɛgɔm**	**ⁿjɛɛgɔ̃**	**ⁿjeegoy**
7	**jeɗɗi**	**jeɗɗi**	**ⁿjɛɗɗɔ̃**	**ⁿjeɗɗoy**
8	**jetti**	**jetti**	**ⁿjɛttɔ̃**	**ⁿjettoy**
9	**jɛɛnay**	**jɛɛnay**	**ⁿjɛɛnayɔ̃**	**ⁿjɛɛnayoy**
10	**sappɔ**	**sappɔ**	**sappɔ**	**sappɔ**
20	**nɔɔgay**	**nɔɔgay**	**nɔɔgayɔ̃**	**nɔɔgayoy**

The -ɔ̃ suffix, used for numerals referring to human beings is cognate with the marker of the 'O class denoting persons. The distribution of these different forms is regional. Within the Inner Niger-Delta the numerals of the plural of human beings end in -ɔ̃. In the dialect of Gimballa the numerals counting the plural of human beings end in -ɔ. The 'O class is used for the category 'human' in the singular. In the plural the 'BE class would be expected, but the singular/plural distinction is neutralized because the number itself already provides the plural.

The agreement of numerals with the nouns they modify is shown in the following examples. The prenasalized initial consonants in numerals agreeing with the plural KOY class and the plosive initial consonant in numerals agreeing with the plural 'DE and 'DI classes is consistent with the initial consonant conditioned by these noun classes. But there is no explanation for the prenasalized initial consonants in numerals for counting human beings. The suffixes of the numerals in the 'DI and KOY classes are the vowel initial allomorphs of these classes. There is also no explanation for the suffix **-i** to occur on numerals agreeing with the noun 'DE class.

'BE:	**yimɓɛ ⁿjɛɗɗɔ̃**	'seven people'
	sukaaɓɛ nɔɔgayɔ̃	'twenty children'
'DE, 'DI:	**daabaaji jeɗɗi**	'seven animals'
	kullɛ jeɗɗi	'seven things'
KOY:	**kulloy ⁿjeɗɗoy**	'seven small things'
	ɓikkoy nɔɔgay, nɔɔgayoy	'twenty children'

Klingenheben (1949:74) says he found, in the Fulfulde dialect of Maasina, a form of the numerals ending in -ɔ agreeing with the augmentative plural class marker KO in the example **ŋgoro mbuumko kewko** 'many blind giants'. This class is not attested in my data of Maasina.

In Maasina there are two alternative ways of counting tens. The Mali forms in the first (left) column has many loan-words, e.g. the words **kɛmɛ** 'hundred' and **dɛbɛ** 'forty' are from Bambara. The alternative forms in the second (right) column look more like the general forms in Fulfulde. In other dialects the full plural of ten **cappanɗɛ** is used to count tens, e.g. **cappanɗɛ ɗiɗi** '20', **cappanɗɛ tati** '30'. The absence of the plural suffix **ɗɛ**

explains the different initial consonant [s] in the Maasina dialect. The plosive (affricate) initial consonant [c] is conditioned by this suffix **-ɗɛ**.

Mali forms		alternative forms
sappɔ	10	**sappɔ**
nɔɔgay	20	**sappanɗiɗi**
nɔɔgay ʔɛ sappɔ	30	**sappantati**
dɛbɛ	40	**sappannay**
dɛbɛ ʔɛ sappɔ	50	**sappaŋⁿjɔy**
mallihɛmrɛ	60	**sappaŋⁿjɛɛgɔm**
mallihɛmrɛ ʔɛ sappɔ	70	**sappaŋⁿjeɗɗi**
hɛmrɛ	80	**sappaŋⁿjetti**
hɛmrɛ ʔɛ sappɔ	90	**sappaŋⁿjɛɛnay**
tɛɛmɛdɛrɛ	100	
tɛɛmɛddɛ ɗiɗi	200 etc.	
ʔujunɛrɛ bamᵐbara	800	
ʔujunɛrɛ silaamu	1000	
ʔujunaaji ɗiɗi	2000 etc.	

In Mopti counting in the market was generally done with the Mali forms, but the alternative forms were used when calculating the price of milk, which was 50 CFA or exactly 10 **buudi** per spoonful (The price per spoon did not change but the size of spoon is adapted to the amount of milk available in the season). One consultant had the impression that the system with **sappan-** 'tens' is more used by elderly persons, and by the Jaawambe, the Fulbe traders. To buy a cow, he recently used the terms with **sappan-** 'tens' instead of the other terms, derived mostly from Bambara.

The word **hɛmrɛ** in 60, 70, 80, and 90 is very often pronounced **hɛmɛrɛ** to avoid the less well-formed sonority hierarchy of the [**mr**] sequence. The final nasal of **sappan-** assimilates in place features to the following consonant, this consonant is automatically prenasalized when voiced, resulting in a form like **sappaŋⁿjɔy** 'fifty'.

The word **sappɔ** 'ten' and numerals higher than twenty show no agreement with the noun they modify. The non-concording numerals precede the singular noun when they occur alone (not followed by other numbers).

sappɔ suka	'ten children'	[lit. ten of child]
sappɔ ⁿgaari	'ten bulls'	[lit. ten of bull]
dɛbɛ nɛɗɗɔ	'forty people'	[lit. forty of person]
mali hɛmrɛ suka	'sixty children'	[lit: sixty of child]

Concording numerals follow the plural noun, also when they combine with non-concording numerals.

lebbi jɔy	'five months'
duuɓi nɔɔgay ʔɛ jɔy	'twenty five years'
daabaaji sappɔ ʔɛ gɔʔɔ	'eleven animals'

8.6 NOMINAL ADPOSITIONS, PREPOSITIONS

Most prepositions in Fulfulde are derived from nouns, and like other nominals they end in a class marker. Sometimes the word is clearly polysemous, with a meaning as a preposition and as an independent noun.

caggal	'at the back of, behind'	**caggal ⁿgal**	'the back (body part)'
yɛɛsɔ	'in front of, before'	**yɛɛsɔ ⁿgɔ**	'the face'
sɛlla	'at the outside of'	**sɛlla ka**	'the outside'
yaasin	'at the outside of'	**yaasi ʔɔ**	'the outside'
ɓaŋŋɛ	'next to'	**ɓaŋŋɛ ʔɔ**	'the side, the river bank'

A marker ***n** is added to the prepositional, locative form of **yaasi** 'outside'. If the noun which follows the preposition is pronominalized, all prepositions are followed by possessive pronouns. This agrees with the nominal status of the prepositions. The possessive pronouns indicate that a prepositional noun phrase has a structure that is identical to a genitive construction.

yaasin suudu	'outside of the house'
yaasin mayru	'outside of it'

Some prepositions are derived from verbs, but the form they take is the infinitive. The infinitive is also a noun ending in a class marker.

ʔiwdɛ	'from'	**ʔiwdɛ**	'to come from'
yaadɛ	'to'	**yaadɛ**	'to go to'
faadɛ	'in the direction of'	**faadɛ**	'to go in the direction of'

There are a few prepositions which are not marked by the presence of a class suffix. The hypothesis is that historically they were derived from nouns ending in a class marker but they have been shortened.

ley	'under, on, in'	**leydi**	'ground'
dow	'up, on'	**dowdi**	'shadow'
faa	'until'	**faadɛ**	'going towards'

The preposition **ley** 'on' is related to the word **leydi/lɛyɗɛ** 'ground, land'. The preposition is probably derived from the noun. The meaning of the preposition can be paraphrased as "on the ground of".

ley lekki	'under the tree' (on the ground of the tree)
ley ⁿdiyam	'on the water' (on the surface level of the water)
ley tumᵐbudɛ	'in the bowl' (on the ground, bottom of the bowl)

That the preposition **ley** is derived form the noun can also be deduced from the syntactic behaviour of pronouns following the prepositions: they take the genitive form.

ley makki	'under it'
ley majjam	'on it'
ley mayrɛ	'in it'

Even the preposition ʔɛ 'with, and', which is not derived from a noun, is followed by the possessive pronoun. This may have been due to syntactic levelling.

ʔɛ makkɔ	'and, with him/her'
ʔe makki	'and, with it' (KI class)
ʔɛ majji	'and, with them' ('DI class)

The study of the combination of the pronouns with prepositions leads into the study of syntax, which is beyond the scope of the present work. The present study has provided an overview of the formation of words in the Fulfulde dialect of Maasina with special emphasis on its semantic aspects. The lexical meaning of these words serve as an input to more complex structures which need further interpretation. The syntactic structures add additional meanings to the lexical meanings of the words, thus forming messages. The study of the words in sentences and in discourse is left for future research.

Appendix one

FEATURE SPECIFICATION

The Fulfulde speech sounds are ordered according to degree of sonority. Not included are nasalized, laryngealized, and voiceless vowels.

	a	ɛ	ɔ	e	o	i	u	y	w	ɥ	r	l	m	n	ɲ	ŋ	β	ʃ	f	s	b	d	j	g	p	t	c	k	ɓ	ɗ	ʄ	ᵐb	ⁿd	ⁿj	ⁿg	ʔ	h
sonority	6	6	6	6	6	6	6	5	5	5	4	3	2	2	2	2	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	0	0
nasal	–	–	–	–	–	–	–	–	–	–	–	–	+	+	+	+	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	+-	+-	+-	+-	–	–
continuant	+	+	+	+	+	+	+	+	+	+	+	–	–	–	–	–	+	+	+	+	–	–	-+	–	–	–	-+	–	–	–	-+	–	–	-+	–	–	+
lateral	–	–	–	–	–	–	–	–	–	–	–	+	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
vibrant	–	–	–	–	–	–	–	–	–	–	+	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
strident	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	+	+	+	+	–	–	+	–	–	–	+	–	–	–	+	–	–	+	–	–	–
laryngeal node:																																					
voice	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	–	–	–	+	+	+	+	–	–	–	–	+	+	+	+	+	+	+	–	–
spread	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	+	+	+	–	–	–	–	–	+	+	+	–	–	–	–	–	–	–	–	+
whisper	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	+
constricted	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	+	+	+	–	–	–	–	+	–
place node:																																					
high	–	–	–	–	–	+	+	+	+	+	–	–	–	–	+	–	–	+	–	–	–	–	+	–	–	–	+	–	–	–	+	–	–	+	–	–	–
back	–	–	+	–	+	–	+	–	+	–	–	–	–	–	–	+	–	–	–	–	–	–	–	+	–	–	–	+	–	–	–	–	–	–	+	–	–
front	–	+	–	+	–	+	–	+	–	+	–	–	–	–	+	–	–	+	–	–	–	–	+	–	–	–	+	–	–	–	+	–	–	+	–	–	–
round	–	–	+	–	+	–	+	–	+	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
low	+	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
ATR	–	–	–	+	+	+	+																														
coronal								+	–	–	+	+	–	+	+	–	–	+	–	+	–	+	+	–	–	+	+	–	–	+	+	–	+	+	–	–	–
anterior								–	+	+	–	–	+	–	–	–	+	–	+	–	+	–	–	–	+	–	–	–	+	–	–	+	–	–	–	–	–

Appendix two

RESULTS OF THE PHONETIC EXPERIMENT ON VOWEL LENGTH

The length of the underlined vowels in the following utterances have been measured with a gate in the laboratory of the Phonetics Department of the Leiden University. An oscillogram was used to mark the audible part of the utterance. With the gate, parts of the utterances were omitted until only the vowel was audible. This part was measured as the length of each vowel. The utterances were recorded with a Sony-walkman on an Agfa ferro cassette in Paris, May 1989. The utterances were pronounced by one informant, T. Tioulenta, a speaker of the Fulfulde dialect of Maasina. When the same vowel is listed twice, then the measurements are taken from different pronunciations of the same word. The vowels are divided into eight groups, based on a division according to the three factors that could influence vowel length: stress, syllable structure (open or closed), and phonological vowel length.

	phonological vowel length	
	short	long
unstressed in closed syllable	1. cvc	5. cvvc
unstressed in open syllable	2. cv	6. cvv
stressed in closed syllable	3. cv̀c	7. cv̀vc
stressed in open syllable	4. cv̀	8. cv̀v

The measurements of vowel length in the Fulfulde of Maasina resulted in the following data:

Group 1: unstressed short vowel in closed syllable: cvc

1.	**rentìnⁿdɛ**	'to gather'	e	= 59 ms
2.	**ɓɔccɔ̀ɔɗɛ**	'eggs'	ɔ	= 46 ms
3.	**jɔm-bàawɗɛ**	'the almighty'	ɔ	= 99 ms
4.	**ɓe ⁿdewrìi**	'they have agreed'	e	= 61 ms
5.	**ɲallìnⁿdɛ**	'to greet in the afternoon'	a	= 43 ms
6.	**mɔjjàa**	'it's not good'	ɔ	= 70 ms
7.	**wittìi**	'has left'	i	= 52 ms
8.	**narratàa**	'do you hear with?'	a	= 66 ms
9.	**famɗìnⁿdɛ**	'to make small'	a	= 48 ms
10.	**ʔanⁿdàama**	'has been known'	a	= 92 ms
11.	**ʔanⁿdàa**	'don't know'	a	= 86 ms
12.	**ʔannìi**	'here it is'	a	= 64 ms average = 65, 5 ms

Group 2: unstressed short vowel in open syllable:

1.	**làbanⁿgal**	'bridle'	a	= 60 ms
2.	**ʔɔmɔ wàawi**	'he can'	ɔ	= 52 ms

(group 2 continued: cv̲)

3.	ʔɔmɔ̲ wàawi	'he can'	ɔ̲	= 70 ms
4.	kàartu̲di	'sputum'	u̲	= 60 ms
5.	ʔa̲na	(locative copula)	a̲	= 60 ms
6.	ʔana̲	(locative copula)	a̲	= 43 ms
7.	hòyni̲nɔ	'had underestimated'	i̲	= 90 ms
8.	hòynu̲dɛ	'to underestimate'	u̲	= 50 ms
9.	gɔ̀llɛ̲ ʔɔ̀ɔ	'that work'	ɛ̲	= 46 ms
10.	joomi̲ràaɗɔ	'lord, master'	i̲	= 46 ms
11.	fijudɛ	'to play'	u̲	= 49 ms
12.	ɓɛ̲ ⁿjeewfii	'they have enjoyed'	ɛ̲	= 48 ms
13.	rèwru̲dɛ	'to agree'	u̲	= 43 ms
14.	bìnta̲	'Binta' (girl's name)	a̲	= 59 ms
15.	narra̲tàa	'do you hear with'	a̲	= 32 ms
16.	na̲nìrdɛ	'to hear with'	a̲	= 70 ms
17.	fàtu̲mata	'Fatumata' (girl's name)	u̲	= 47 ms
18.	fàtuma̲ta	'Fatumata' (girl's name)	a̲	= 39 ms
19.	ŋàrɗu̲ɓɛ	'beautiful (people)'	u̲	= 50 ms
20.	wɛ̲làa	'isn't nice'	ɛ̲	= 82 ms
21.	lèɛtɛ̲rɛ	'letter'	ɛ̲	= 33 ms
22.	ka̲nàa	'should'	a̲	= 48 ms average = 53,5 ms

Group 3: stressed short vowel in closed syllable: cv̲̌c

1.	ŋà̲rɗudɛ	'to be beautiful'	à̲	= 83 ms
2.	lobbidǐ̲nⁿdɛ	'to be kind'	ǐ̲	= 118 ms
3.	nà̲wrɛ	'lake'	à̲	= 70 ms
4.	famɗǐ̲nⁿdɛ	'to make small'	ǐ̲	= 74 ms
5.	hò̲ninɔ	'had underestimated'	ò̲	= 60 ms
6.	gɔ̲̀llɛ ʔɔ̀ɔ	'that work'	ɔ̲̀	= 73 ms
7.	hò̲ynudɛ	'to underestimate'	ò̲	= 59 ms
8.	rè̲wrudɛ	'to agree'	è̲	= 129 ms
9.	rè̲wrudɛ	'to agree'	è̲	= 78 ms
10.	sà̲nnɛ	'much'	à̲	= 58 ms
11.	ɲallǐ̲nⁿdɛ	'to greet in the afternoon'	ǐ̲	= 69 ms
12.	hǐ̲nnudɛ	'to greet in the evening'	ǐ̲	= 124 ms
13.	lè̲kki cùkkuki	'tree with dense foliage'	è̲	= 76 ms
14.	lèkki cù̲kkuki	'tree with dense foliage'	ù̲	= 48 ms
15.	rentǐ̲nⁿdɛ	'to gather'	ǐ̲	= 34 ms
16.	hùuⁿdɛ wɔ̲̀nⁿdɛ	'another thing'	ɔ̲̀	= 98 ms
17.	sà̲wru	'staff'	à̲	= 59 ms
18.	bǐ̲nta	'Binta' (girl's name)	ǐ̲	= 80 ms
19.	bǐ̲nta	'Binta' (girl's name)	ǐ̲	= 62 ms
20.	nanǐ̲rdɛ	'to hear with'	ǐ̲	= 43 ms
21.	tǐ̲kkudɛ	'to be sad'	ǐ̲	= 31 ms
22.	wɔ̲̀nⁿdɛ	'to be'	ɔ̲̀	= 78 ms

(group 3 continued: cv̀c)

23. **wɔ̀nⁿdɛ**	'to be'	ɔ̀	= 74 ms	
24. **ŋàrɗuɓɛ**	'beautiful (people)'	à	= 68 ms	
25. **hìnnɔ**	'may take care'	ì	= 69 ms	
26. **ʔàlla**	'god'	à	= 98 ms	
27 **dɛ̀bbɔ**	'woman'	ɛ̀	= 68 ms	average = 72, 2 ms

Group 4: stressed short vowel in open syllable: cv̀

1. **fùjɛ**	'pimples'	ù	= 76 ms	
2. **làbaⁿgal**	'bridle'	à	= 82 ms	
3. **fìjudɛ**	'to play'	ì	= 70 ms	
4. **hòɗum**	'what'	ò	= 46 ms	
5. **fàtumata**	'Fatumata' (girl's name)	à	= 39 ms	
6. **màⁿdɛ**	'when'	à	= 75 ms	
7. **ʔana wèli**	'it's nice'	è	= 56 ms	
8. **wònudɛ**	'to be'	ò	= 61 ms	
9. **jàwɔ**	'bracelet'	à	= 60 ms	
10. **ɓɛ ⁿgàɗi**	'they have done'	à	= 88 ms	
11. **dùwɛnɛ**	'may bless you'	ù	= 53 ms	average = 64, 2 ms

Group 5: unstressed long vowel in closed syllable: cvvc

1. **ŋɔɔrnàadɛ**	'to be sad'	ɔɔ	= 106 ms	
2. **waaɲcàadɛ**	'to wander around'	aa	= 130 ms	
3. **cuunnɔ̀ɔɗɔ**	'who had hidden'	uu	= 167 ms	
4. **ɓɛ ⁿjeewtii**	'they have enjoyed'	ee	= 69 ms	
5. **laattɔ̀ɔ**	'will become'	aa	= 95 ms	average = 113, 4 ms

Group 6: unstressed long vowel in open syllable: cvv

1. **joomiràaɗɔ**	'lord, master'	oo	= 135 ms	
2. **cuuɗunɔ̀ɔɗɔ**	'who had hidden'	uu	= 99 ms	
3. **juuɓii**	'has prayed'	uu	= 91 ms	
4. **yɛɛwèɛdɛ**	'to miss'	ɛɛ	= 176 ms	
5. **yɛɛwàama**	'miss'	ɛɛ	= 174 ms	
6. **looɓiima**	'has washed him/herself'	oo	= 133 ms	average = 134, 7 ms

Group 7: stressed long vowel in closed syllable:

1. **ɲàamⁿdu**	'food'	àa	= 172 ms	
2. **ɓèemri**	'withdrawal of flood'	èe	= 124 ms	
3. **ɓèemri**	'withdrawal of flood'	èe	= 144 ms	
4. **mìildɛ**	'to think'	ìi	= 187 ms	
5. **hàayrɛ**	'stone'	àa	= 134 ms	
6. **wàawdɛ**	'to be able'	àa	= 128 ms	
7. **fùuydɛ**	'to be lazy'	ùu	= 150 ms	
8. **mɔ pùuyɗɔ**	'he is lazy'	ùu	= 138 ms	
9. **nàarrɛ**	'entrance of flood'	àa	= 181 ms	

(group 7 continued: cv̀vc)

10. **kàartudi**	'sputum'	**àa** = 132 ms	
11. **dàawⁿgal**	'crow'	**àa** = 128 ms	
12. **jɔm-bàawɗɛ**	'the almighty'	**àa** = 122 ms	
13. **pùuyⁿdam**	'laziness'	**ùu** = 105 ms	
14. **yèewtudɛ**	'to amuse, enjoy o.s.'	**èe** = 62 ms	
15. **ⁿjèewti**	'are amused'	**èe** = 69 ms	
16. **tèew**	'meat'	**èe** = 90 ms	
17. **jàawⁿgal**	'guinea fowl'	**àa** = 125 ms	
18. **mòottudɛ**	'to assemble'	**òo** = 86 ms	
19. **mòotti**	'Mopti'	**òo** = 113 ms	
20. **kɔ̀ɔrɗɔ**	'female slave'	**ɔ̀ɔ** = 118 ms	
21. **hɔ̀ɔrɓɛ**	'female slaves'	**ɔ̀ɔ** = 154 ms	
22. **jɔ̀ɔnⁿdɛ**	'seat, position'	**ɔ̀ɔ** = 153 ms	
23. **jɔ̀ɔnⁿdɛ**	'seat, position'	**ɔ̀ɔ** = 142 ms	
24. **hòownudɛ**	'to beat offensively'	**òo** = 117 ms	
25. **pɔ̀ɔyⁿdam**	'meagreness	**ɔ̀ɔ** = 142 ms	
26. **wɔ̀ɔɓɓɛ**	'beautiful (people)'	**ɔ̀ɔ** = 107 ms	
27. **jùuldɛ**	'to pray'	**ùu** = 75 ms	
28. **wèennudɛ**	'to greet at noon'	**èe** = 121 ms	
29. **cùurⁿgol**	'band'	**ùu** = 88 ms	
30. **ʔòoldi**	'yellow (bull)'	**òo** = 153 ms	
31. **lèkki cùukki**	'tree that has hidden'	**ùu** = 158 ms	
32. **wùurnu**	'may cause to live'	**ùu** = 181 ms	average = 128,1 ms

Group 8: stressed long vowel in open syllable: cv̀v

1. **waaɲcàadɛ**	'to wander around'	**àa** = 191 ms	
2. **ʔɔmɔ wàawi**	'he can, he is able'	**àa** = 202 ms	
3. **ʔɔmɔ fùuji**	'he is lazy'	**ùu** = 134 ms	
4. **ɓɔccɔ̀ɔɗɛ**	'eggs'	**ɔ̀ɔ** = 111 ms	
5. **joomiràaɗɔ**	'lord, master'	**àa** = 152 ms	
6. **hùuⁿdɛ**	'thing'	**ùu** = 227 ms	
7. **hùuⁿdɛ**	'thing'	**ùu** = 156 ms	
8. **kàajɛ**	'stones'	**àa** = 147 ms	
9. **ŋɔɔrnàadɛ**	'to be sad'	**àa** = 140 ms	
10. **yɛɛwèɛdɛ**	'to miss'	**èɛ** = 149 ms	
11. **yɛɛwàama**	'have missed'	**àa** = 144 ms	
12. **cuunnɔ̀ɔɗɔ**	'who had hidden'	**ɔ̀ɔ** = 153 ms	
13. **cuuɗunɔ̀ɔɗɔ**	'who had hidden'	**ɔ̀ɔ** = 98 ms	
14. **ɓèeɓudɛ**	'to dry up'	**èe** = 111 ms	
15. **wòoɗudɛ**	'to be beautiful'	**òo** = 172 ms	
16. **ʔanⁿdàama**	'has been known'	**àa** = 131 ms	
17. **lèɛtɛrɛ**	'letter'	**èɛ** = 144 ms	
18. **maⁿdɛ ɓɛ ɲàami**	'when did they eat'	**àa** = 118 ms	average = 148, 9 ms

The conclusions on the length of vowels are based on the comparison of the variants that occur in two groups, differing in one feature: phonological vowel length (short versus long), stress (stressed versus unstressed), and syllable structure (open versus closed).

group	range	average vowel length	standard deviation
2. CV	43-99 ms	53,5 ms	14,5
4. CV̀	33-90 ms	64, 2 ms	15,4
1. CVC	31-129 ms	65,5 ms	18,4
3. CV̀C	39-88 ms	73,4 ms	24,0
5. CVVC	69-167 ms	113,4 ms	37,1
7. CV̀VC	62-187 ms	128,1 ms	32,2
6. CVV	91-176 ms	134,7 ms	35,9
8. CV̀V	98-227 ms	148,9 ms	32,9

The conclusions of the t-test are that the duration of vowels in stressed vs. unstressed vowels is significantly different when all data are entered. This difference is not significant with a smaller amount of data. The difference in duration of a vowel in CV vs. CVC is significant in a comparison of short vowels only. The duration of vowels in a CVV vs. CVVC syllable is significantly different in a comparison of only long vowels. The effect of a coda which closes the syllable on vowel length does not come out in a comparison of all data, since the effects are opposite for long vs. short vowels (see also section 4.3.2).

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FORM AND MEANING IN FULFULDE describes the sound structure and word formation processes of Fulfulde based on the data of the Maasina dialect (Mali) with comparative data from other dialects including Ringimaaji (Cameroon). Both Maasinankooore and Ringimaajiire — the dialects on which the author's fieldwork was based — are not commonly studied varieties of Fulfulde. In the first part of the book the author sheds new light on some characteristic features of Fulfulde phonology such as word stress, consonant alternation, and vowel length and its interaction with syllable structure and stress.
In the second part, the author reviews the structure of verbs and their extensions, and presents new and innovative analyses of the nominal class marker system (the suffix grades and the noun classes) of Fulfulde. She argues that the behaviour of the different variants of each class marker is constrained by semantic principles rather than by the lexical nature, phonotactic or syllable structure of the stem as other linguists have traditionally argued. The author also looks in detail at the semantics of the individual 22 classes in Maasina and explores the principles and cultural foundations of the semantic associations among the members of each class. For instance, the author explains how one can account for the treatment of cows, fire and sun as members of the same class in terms of prototype semantics and from cultural ideas about these entities and their relationships recoverable in part from Fulbe mythology.

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