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Form and meaning in Fulfulde: a morphophonological study of Maasinankoore

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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:

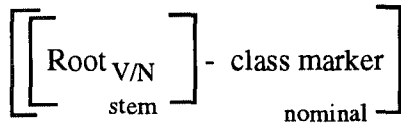
grade:	A	B	C	D
	'story'	'chief'	'recipient'	'dog'
basic gender:	NGOL/'DI	'O/'BE	NDE/'DE	NDU/'DI
sg.	taal-ol	hɔɔ-rɛɛ-jɔ	tum^mb-u-de	raw-aa-ⁿdu
pl.	taal-i	hɔɔ-rɛɛ-ɸɛ	tum^mb-u-dɛ	daw-aa-dɪ
NGEL: dim.	taal-el	hoo-re-wel	tum^mb-u-gel	daw-a-ⁿgel
KOY: dim.pl.	taal-oy	hoo-re-woy	tum^mb-u-koy	ⁿdaw-a-koy
NGAL: augm.	taal-al	hɔɔ-rɛ-wal	tum^mb-u-gal	daw-a-ⁿgal
'DE: augm.pl.	taal-ɛ			daw-aa-dɛ

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.

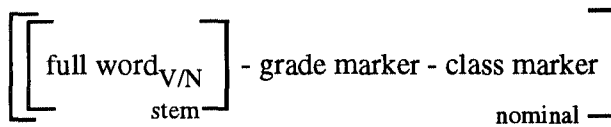
$$\left[\left[\text{stem} \right] - \left[\begin{array}{c} \text{(grade marker) - class marker} \\ \text{suffix} \end{array} \right] \right]_{\text{noun}}$$

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.

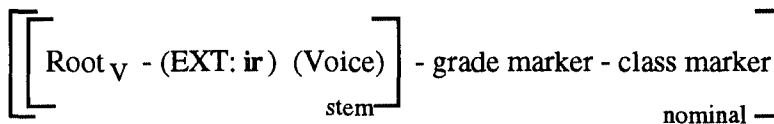
Grade A nouns:



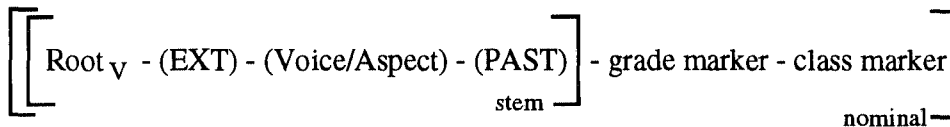
Grade B nouns:



Grade C nouns:



Grade D nouns:



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 **yanaaⁿde** '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.

* 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:

$$\left[\left[\text{stem} \right] - \left[\begin{array}{l} \text{(grade marker) - class marker} \\ \text{suffix} \end{array} \right] \right] \\ \text{noun}$$

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:

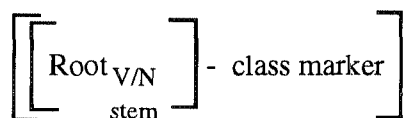
A	B	C	D
objective	associative	circumstantial	subjective
Ø	*q	*r	*n

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:



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-ere	'nose'	NDE
wan-e	'black cow'	NGE
ʔɔr-ɔ	'sauce of leaves'	KO
fad-ɔ	'sandal'	NGO
lew-ru	'moon, month'	NDU
ful-ʃe	'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-e	'eyes'	'DE
nood-i	'crocodiles'	'DI
laan-a	'boat'	KA
mɔl-u	'foal'	NGU (also concord 'O)
ⁿges-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.

Stem N + class marker --> Noun

1
“object”

Derivation of grade A nouns based on an active verbal root:

Stem v + class marker --> Noun

|
“active”

|
“cognate object of V”

Examples of grade A nouns based on an active verb stem:

active verbs		cognate object	class
tajj-ude	'to cut up'	tay-re	'part' NDE
fif-ude	'to tie'	fim-re	'knot, wedding' NDE
hof-ude	'to bend'	how-ru	'knee' NDU
wap-ude	'to hate'	gap-ɔ	'enemy' 'O
yaag-aade	'to respect'	jaag-ɔ	'loved one' 'O
miil-de	'to think'	miil-ɔ	'thought' NGO
fij-ude	'to play'	fij-ɔ	'game' NGO
yim-ude	'to sing'	jim-ol	'song' NGOL
taal-aade	'to tell'	taal-ol	'story' NGOL
fellis-idde	'to decide'	pellis-al	'decision' NGAL
hett-ude	'to harvest'	kett-al	'harvest' NGAL
goll-ude	'to work'	goll-e	'work' 'DE
haal-de	'to speak'	haal-a	'word' KA
wecc-ude	'to change'	mbecc-u	'change' NGU
ʔuj-ude	'to castrate'	ʔuj-iri	'castrated bull' NDI
yar-de	'to drink'	njar-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 **taalaade** ‘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 **taalaade** ‘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 **ʔujude** ‘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 **fimre** translated as ‘knot’ and ‘wedding’ with the verb **fifude** ‘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
<div style="display: flex; justify-content: space-around; align-items: center;"> <div style="text-align: center;"> “stative” </div> <div style="text-align: center;"> “cognate state of V” </div> </div>

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-ude ‘to be(come) starving’	heyɗ-ere ‘famine’	NDE
yolb-ude ‘to be(come) hungry’	yolb-ere ‘hunger’	NDE
sey-aade ‘to be(come) happy’	sey-ɔ ‘joy’	NGO
toɓ-ude ‘to (start to) rain’	toɓ-ɔ ‘rain’	NGO
ʔegg-ude ‘to migrate’	ʔegg-uru ‘migration’	NDU
ɓuuɓ-ude ‘to be(come) cold’	ɓuuɓ-ol ‘cold’	NGOL
hul-de ‘to fear, be(come) afraid’	kul-ol ‘fear’	NGOL
ʔanⁿd-ude ‘to (come to) know’	ʔanⁿd-al ‘knowledge’	NGAL
mup-ude ‘to be(come) patient’	mup-al ‘patience’	NGAL
saah-aade ‘to be(come) educated, polite’	caah-u ‘politeness’	NGU
ɓeeɓ-ude ‘to run dry’	ɓeem-ri ‘low tide’	NDI
ʔil-de ‘to run, rise (of water)’	ʔil-am ‘flood’	DAM

The word **heyɗere** ‘famine, starvation’ is clearly the state most closely related to the meaning of the verb **heyɗude** ‘to starve (with hunger)’. Additional cultural information is

needed to explain words like **feemri** translated here as 'low tide'. The word **feemri** 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 **feemri** is therefore the cognate state related to the intransitive stative verb **feefude** '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 **ʔilde** '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.

$$[\text{Noun}_{\text{stem}}] + \text{grade B marker} + \text{class marker} \rightarrow \text{Noun}$$

$$|$$

$$\text{"thing associated with feature of N in stem"}$$

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-re	‘hole’
d̥id̥-i	‘two’	d̥id̥ii-we	‘2 year old cow’
mulg-ɔ	‘toothless person’	mulgɔɔ-we	‘cow without horns’
ʔafɔ	‘name for first son’	ʔafɔɔ-ɔ	‘first son’
hɔɔ-re	‘head’	hɔɔreɛ-ɔ	‘chief, president’
ᵐbaal-u	‘sheep’	ᵐbaaluᵐbaalu-wal	‘amble’
haak-ɔ	‘foliage’	haako-wol	‘leaf’
ʔɔr-ɔ	‘foliage for sauce’	ʔoroɔ-wi	‘baobab’
gɔr-ɔ	‘colanut’	ⁿgoroɔ-wi	‘colanut tree’
maaⁿgɔr-ɔ	‘mango’	maaⁿgoroɔ-wi	‘mango tree’
taam-u	‘silk-cotton, kapok’	taamuu-wi	‘kapok tree’
gel-le	‘villages’	ⁿgellee-wi	‘doug 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 **hɔɔreɛɔ** ‘chief, president’ derived from the word **hɔɔre** ‘head’. The feature of being the head is taken here metaphorically. The semantic association “head” : “leader” is a common cross-linguistic pattern. The **hɔɔreɛɔ** is “an entity of the 'O' class associated with a feature of the head”. This paraphrase equals the following paraphrase: a **hɔɔreɛɔ** is “a person that is associated with the feature of being at the head (of a group)”. Another example is the word **mulgɔɔwe** ‘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. **mulge** ‘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 **ʔokki** when it is bare (Issa Diallo, personal communication).

The association of **ⁿgelleewi** ‘the doug palm’ with **gelle** ‘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^mbɛɛ-wɔ	'paddle'	NGO
			kum^mbɛɛ-je	'paddles'	'DE
Soninke	funɛ	'twins'	funɛɛ-jɔ	'twin'	'O
			funɛɛ-fɛ	'twins'	'BE
Soninke	taane	'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'	suleɛ-wɔ	'shoe'	NGO
French	coupecoupe	'machete'	kupukupuu-wi	'machete'	KI
French	pot	'saucepan'	fotii-rɛ	'saucepan'	NDE
			potii-je	'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	daneɛ-jɔ	ɓaleɛ-jɔ	nayɛɛ-jɔ	'O
^mbɔɗɛɛ-wi	ⁿdaneɛ-wi	ɓaleɛ-wi	nayɛɛ-wi	KI
wɔɗɛɛ-wɔ	ranɛɛ-wɔ	ɓaleɛ-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-we	'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^mb-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.

nedɗɗ-ɔ bitt-ɔɔ-wɔ	'a person that is leaving'	'O
not: * bitt-ɔɔ-jo		

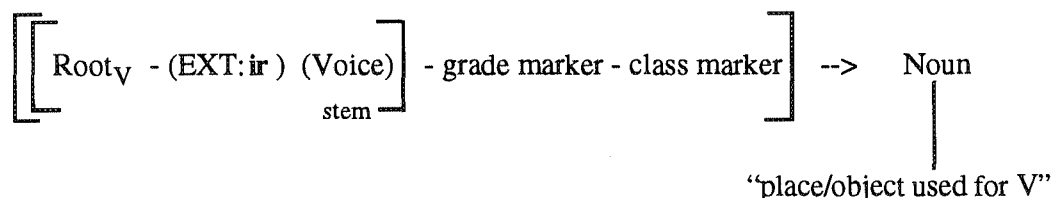
Agentive nouns which occur in a class different from the 'O class compare the thing referred to by the concord marker to the prototypical meaning "agent" of a person. The association of the agent with the meaning of "person" as prototypical agent expressed in the morpheme -**ɔɔ**- in the stem determines 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:



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’
jaab-ir-gal	‘treadle, pedal’	yaaɓ-u-dɛ	‘to tread’
jaŋ^g-ir-gel	‘reading slate’	jaŋ^g-u-dɛ	‘to learn, read’
bin^d-ir-gol	‘writing feather’	win^d-u-dɛ	‘to write’
laɓ-or-ki	‘razor’	laɓ-u-dɛ	‘to shave’
siw-r-u-dɛ	‘cast’	siw-dɛ	‘to pour’
tum^b-u-dɛ	‘recipient’	tum^b-u-dɛ	‘to put in’
fed-ɔɔ-dɛ	‘button’	fed-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 **siwruɗe** ‘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’
jaŋ^g-ir-du	‘school’	jaŋ^g-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 **fijirde** ‘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	-de	"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 **-de** of the suffix in the NDE class can be used very productively. Added to the verbal stem the grade C suffix **-de** marks a verbal noun whose closest translation equivalent in English is the infinitive "to V".

winⁿd-u-de	'to write'
dur-de	'to herd'
yaa-de	'to go'
war-t-u-de	'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 **durɔyde** 'to herd elsewhere' in the following sentence shows that infinitives in Fulfulde also express intention.

pullo witt-ii	dur-ɔy-de
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 **-de**.

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 **-de** 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. **jaapelol** ‘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 yə gollə fulbe
 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.

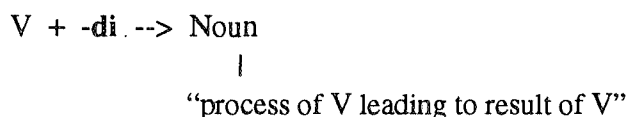
The verbal nouns that are formed with the grade C suffix **-du** of the NDU class express the meaning “manner of”. Manner describes the way in which the event denoted by the related verb is performed. Thus it describes a circumstance of the event described by the verb from which the noun describing manner is derived. This circumstantial meaning is the reason for the choice for a suffix from grade C.

dog-u-de	‘to run’	dod-du	‘manner of running; course’
yaa-de	‘to go, walk’	yaa-du	‘manner of walking; journey’
jaam-u-de	‘to eat’	jaamⁿdu	‘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-de	‘to laugh’	jal-du	‘manner of laughing’
miil-de	‘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. Its meaning is represented in the following schema.



Examples of process/results:

nee-di	'education'	neh-u-de	'to educate'
ᵐball-u-di	'help'	wall-u-de	'to help'
ᵐjob-di	'wages'	yof-u-de	'to pay'
ᶑuud-di	'swelling'	ᶑuut-u-de	'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 **nehude** '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 **-de** 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.

paan̄-ki, paakki, pakki	'narrowness'	faad̄-u-de	'to be narrow'
kem-ki, kekki	'greed'	heḡ-u-de	'to obtain'
ⁿjuun̄-ki, ⁿjuuk-ki, ⁿjukki	'length'	juut-u-de	'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”.

ᵐḡḡwka, ᵐḡḡw-ka	'habit'	wḡḡw-de	'to be used to'
ⁿgay-ka	'hole'	ʔas-ude	'to dig'
kḡḡr-ka	'fast'	hḡḡr-de	'to fast'
ⁿguy-ka	'theft'	wuj-j-ude	'to steal'
ḡḡm-ka, ḡḡḡ-ka	'thirst'	ḡḡm-ḡ-ude	'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 **kḡḡrka** ‘fast’ describes an action that shows clearly the way in which fasting (**hḡḡrde** ‘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.

<i>class suffix</i>	<i>meaning</i>	<i>circumstantial meaning component</i>
all classes	“entity (place/object) used for V-ing”	purpose
-de	“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 **-dɔ** 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 {**d 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:

$$\left[\left[\text{Root}_V - (\text{EXT}) - (\text{Voice/Aspect}) - (\text{PAST}) \right]_{\text{stem}} - \text{grade marker} - \text{class marker} \right]$$

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-dɔ	‘Muslim: who has prayed’	juul-	‘pray’
bar-dɔ	‘murderer: who has killed’	war-	‘kill’
waa-ⁿdu	‘monkey: that resembles’	wah-	‘resemble’
d̥aa-ⁿdi	‘carrying bull: that is docile’	d̥aat-	‘be docile’
ɓey-ⁿge	‘milk cow: that has given birth’	ɓeyn-	‘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'	rad-	'tie calves'
ḡir-aa-ḡam	'fresh milk: being milked'	ḡir-	'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:

mɔd- 'swallow'

A: **mɔd-ɛɛ** 'which can be swallowed in one time; pill' (NDE class)

B: **mɔd-ɔɔ-rɛ** 'which swallows' (agentive NDE class)

C: **mɔd-u-dɛ** 'to swallow' (infinitive NDE class)

D: **mɔd-u-ndɛ** 'which has swallowed' (participle NDE class)

laɖ- 'shave'

A: **lam-ru** 'shaving of child during naming ceremony; that ceremony' (NDU class)

B: **laɖ-oo-ru** 'shaver, who shaves' (agentive NDU class)

C: **laɖ-u-du** 'manner of shaving' (NDU class)

D: **laɖ-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: **gɔll-u-dɛ** 'to work' (infinitive NDE class)

D: **gɔll-u-dɔ** 'who has worked' (participle 'O class)

D: **gɔll-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. Klingenberg (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.

	<i>grade marker</i>		<i>class marker</i>		<i>class suffix</i>
grade A	Ø	+	*w ol	-->	-ol
grade B	*q	+	*w ol	-->	V-wol
grade C	*r	+	*w ol	-->	(r)-gol
grade D	*n	+	*w ol	-->	- 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.

*ηeeɲ	+	*ʔɔ	>	ηeeɲ-ɔ, ɲeeɲ-ɔ	‘member of the group of artisans’
*waag	+	*ʔi	>	baag-i	‘cows with white side’
*sef	+	*ʔɛ	>	cef-ɛ	‘herds’

In many words the initial glottal stop leaves a trace. This is described by Klingenberg’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 **nawe** ‘ponds’ shows no trace, the plural form **nabbe** ‘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 dialects), 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.

*new	+	*re	>	new-re	‘hand palm’
*ⁿgah	+	*ri	>	ⁿgaa-ri	‘bull’
*dɔy	+	*ru	>	dɔy-ru	‘cough’
*tam	+	*re	>	tam-re	‘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	+	*re	>	hɔr-de	‘calabash spoon’
*wuul	+	*ri	>	^m buul-di	‘white faced bull’
*ʔelelel	+	*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- ⁿ di	‘flour’
*hɛn	+	*ru	>	hen- ⁿ du	‘wind, spirit’
*haatan	+	*re	>	haatan- ⁿ dɛ	‘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	+	*re	>	hɔɔd-ɛre	‘star’
*talk	+	*ru	>	talk-uru	‘amulet’
*jiib	+	*ri	>	ⁿ jiib-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 *-ere and *-re can follow the stem final nasal consonant [ɲ] in the stem *heɲn ‘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.

*heɲn + *re > heɲn-ere, heɲy-re ‘liver’

The associative marker [ɥ] merges with a laryngealized consonant [ɖ] 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 {e, ɛ, 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 *wojjude* ‘to be(come) red’.

*hɔɔre	['head']	+	*ɥ	+	*ʔɔ	>	hɔɔreɛ-jɔ	‘chief, president’
*kum ^m be	[Srg.]	+	*ɥ	+	*ʔɛ	>	kum ^m bɛɛ-je	‘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	+	*re	>	sagii-re	‘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	+	* we	>	ɗiɗii-we	'2 year old cow'
* kumbe	[Srg.]	+	* ɥ	+	* wɔ	>	hum^mbɛɛ-wɔ	'paddle'
* giro		+	* ɥ	+	* wu	>	ⁿgiroo-wu	'pig'
* tɛfɛ		+	* ɥ	+	* wa	>	tɛfɛɛ-wa	'donkey, she-ass'
* taane	[Son.]	+	* ɥ	+	* wal	>	taane-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 /**ɗiɗiiwe**/ 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	>	ⁿgoroo-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'
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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	+	* ʃɛ	->	hɔɔrɛɛʃɛ	'presidents'
* gargasa	[Tsk.]	+	* ɥ	+	* ʃɛ	->	gargasaʃɛ	'leather-workers'
* fune	[Son.]	+	* ɥ	+	* ʃɛ	->	funeɛʃɛ	'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 -**ɛ** in these Nigerian Fulfulde dialects. The following examples are from the Gombe dialect described by Arnott (1970a:107, 116, 124).

*fuk	+	ar	+	a	+	ɥ	+	ɛ	->	fukaraaɛ	'pupils'	sg. pukaraajo
*rem	+		+	ɔ	+	ɥ	+	ɛ	->	remɔɔɛ	'farmers'	dɛmɔɔwɔ
*sɔɔb	+		+	a	+	ɥ	+	ɛ	->	sɔɔbaaɛ	'friends'	sɔɔbaajo

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	+	*ɛ	->	sukaaɛ '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^mbilam-ji** which is the plural of **tim^mbil-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	*q-ʔɔ	V-jɔ
'DI	*q-ʔi	V-ji
'DE	*q-ʔɛ	V-jɛ
'DAM	*q-ʔam	V-jam
'DUM	*q-ʔum	V-jum
NDU	*q-ru	V-ru
NDE	*q-rɛ	V-rɛ
NDI	*q-ri	V-ri
KI	*q-hi	V-wi [V-qi]
KA	*q-ha	V-wa
KO	*q-hɔ	V-wɔ
KAL	*q-hal	V-wal
KOL	*q-hol	V-wol
KOY	*q-hoy	V-woy
NGO	*q-wɔ	V-wɔ
NGE	*q-wɛ	V-wɛ [V-qɛ]
NGU	*q-wu	V-wu
NGAL	*q-wal	V-wal
NGEL	*q-wel	V-wel [V-qel]
NGOL	*q-wol	V-wol
BA/NGA	*q-wa	V-wa
'BE	*q-ʔɛ	V-ʔɛ

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 Klingenberg'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-.

*sap	+	*ir	+	*wal	->	capir-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	+	*re	>	siiwru-de	'form for casting metals'
*fih	+	*r-u	+	*wal	>	piiru-gal	'drumstick' (Arnott 1970a)
*bir	+	*r-u	+	*wal	>	birdu-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	+	*de	>	haasaade	‘file’		
	*damm	+	*u	+	*gal	>	dammu-gal	‘door’		
<i>or</i>										
	*haas	+	*aa	+	*r	+	*re	>	haasaade	‘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)-dʔɔ
'DI	*r-ʔi		(r)-dʔi
'DE	*r-ʔe		(r)-dʔe
'DAM	*r-ʔam		(r)-dʔam
'DUM	*r-ʔum		(r)-dʔum
NDU	*r-ru		(r)-du
NDE	*r-re		(r)-de
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-ʏɔ	(r)-gɔ
NGE	*r-we	< *r-ʏe	(r)-ge
NGU	*r-wu	< *r-ʏu	(r)-gu
NGAL	*r-wal	< *r-ʏal	(r)-gal
NGEL	*r-wel	< *r-ʏel	(r)-gel
NGOL	*r-wol	< *r-ʏol	(r)-gol
BA/NGA	*r-wa	< *r-ʏa	(r)-ba / (r)-ga
'BE	*r-ʔe		(r)-ʔe

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’
*ʔe	+	V	+	*n	>	ʔeen	‘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	>	minen	[minē]	'we excl.'
*ʔen	+	V	+	*n	>	ʔenen	[ʔenē]	'we incl.'
*ʔɔn	+	V	+	*n	>	ʔɔnɔn	[ʔɔnō]	'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 [ɖ].

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		-dʔ
'DI	*n-ʔi		-di
'DE	*n-ʔe		-de
'DAM	*n-ʔam		-dam
'DUM	*n-ʔum		-dum
NDU	*n-ru		- ⁿ du
NDE	*n-re		- ⁿ de
NDI	*n-ri		- ⁿ di
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	- ⁿ gɔ
NGE	*n-we	<*n-ɣe	- ⁿ ge
NGU	*n-wu	<*n-ɣu	- ⁿ gu
NGAL	*n-wal	<*n-ɣal	- ⁿ gal
NGEL	*n-wel	<*n-ɣel	- ⁿ gel
NGOL	*n-wol	<*n-ɣol	- ⁿ gol
BA / NGA	*n-wa	<*n-ɣa	-ba / - ⁿ ga
'BE	*n-be		-be

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 Fulfule 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** **-ŋke** (of the 'O class), **-eefi** (of the KI class), **-ⁿdam** (of the 'DAM class), **-²en** (of the 'BE class), and **-eele** (of the 'DE class). Some attempt will be made to explain suffix forms **-li**, **-le**, **-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.