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Mongolic phonology and the Qinghai-Gansu languages

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4. MODERN DEVELOPMENT OF THE CM CONSONANTS

4.1. Introduction

In the following pages the main developments of each CM consonant will be discussed. Each section will start with the 'default'[252] development of the consonant in question, which usually involves only a small change, if any at all. After that the other common developments will be given, which can be called shifts, as they consist of a change in one or more features. This survey focuses on those developments in the QG languages that shed light on aspects of the reconstruction of CM, or on the taxonomic relations between the modern languages. Dagur and Moghol will be compared where relevant.

There are usually several reflexes per CM consonant in each language. Which reflex appears in a given word is largely determined by phonotactical factors: the position of the consonant in the word with respect to the accent, the vicinity of any other consonants, either directly adjacent or separated by one vowel, and in some cases, the following vowel.

Most consonants show different developments in different positions and environments. The five relevant positions in Common Mongolic are:

Initial	(word-initial)
Intervocalic	(syllable-initial, following a vowel)
Postconsonantal	(syllable-initial, following a consonant)
Final	(word-final)
Preconsonantal	(syllable-final, preceding a consonant)

In CM **tarbagan* 'marmot' all of these positions occur: **t* initial, **r* preconsonantal, **b* postconsonantal, **g* intervocalic, **n* final.

Due to the loss of unaccented vowels consonants may secondarily come into contact with other consonants. They will be called secondarily preconsonantal or postconsonantal as the case may be. Such changes are relevant because they may affect not only the further development of the individual consonant but also the ability of that consonant to influence other consonants in the stem. CM **kurïgan* 'lamb' has become **kurgan* in Proto Shirongol, after which the, now post-consonantal, *g* was able to deaspirate the initial in the Baoanic languages[253], as in Kgj *ğurğun*. The Dongxiang form *ġuğaŋ* owes the loss of the *r* to its secondarily preconsonantal position (intervocalic *r* is not elided).

Vowel elisions have led to changes in the positional and combinatory properties of individual consonants. For instance **h-*, in CM limited to absolute initial position and followed by a vowel, can now be seen preceding other consonants, as in Baoan *hda* < **huuta* 'bag'. CM **ŋ*, which used to be restricted to

[252] Default in the sense of 'in the absence of factors triggering other developments'. The default reflex thus defined need not be the most frequent one.

[253] Initial weakening is triggered by a weak (postconsonantal or intervocalic) consonant that starts the second syllable. See below.

syllable-final positions, can now also be found as the first member of initial clusters, as in MgrH *ŋgo* < **öŋge* 'colour'.

Thus a new kind of syllable structure was created, with consonants that are word-initial and preconsonantal at the same time.

On the other hand, especially in dialects under strong Chinese influence, consonant clusters may be dissolved, resulting in secondarily intervocalic consonants.

4.1.1. Proto Mongolic legacy and prehistoric shifts

Some of the differences between the word shapes found in modern Mongolic languages are not due to relatively recent sound shifts, but are in fact relics from old variants that must have existed before the divergence of the present languages. Some are documented in older languages, while others can be distilled from the modern languages. Alternations include:

Final *d ~ s ~ š ~ č*, as in **hedke- ~ *heske-*, etc. 'to cut'
Initial *g ~ ǰ*, as in **gïloan ~ *ǰïloan* 'shiny'
Initial and medial *d ~ ǰ*, as in **kadaar ~ *kaǰaar* 'horse's bit'
Intervocalic *d ~ t*, as in *gedesün ~ *getesün* 'intestine'
Intervocalic *g ~ k*, as in **nigen ~ *niken* 'one'
Medial or final *l ~ r*, as in **čaalsun ~ *čaarsun* 'paper', but mostly due to dissimilation
Initial and intervocalic *n ~ l*, as in **menekei ~ *melekei* 'frog', mostly due to dissimilation
Intervocalic and postconsonantal *b ~ m*, as in **kabar ~ *kamar* 'nose', **nïlbusun ~ *nïlmusun* 'tear'.

Of course, most of these sets of variants reflect well-known phonetic changes, so that it is often possible to tell which variant is the oldest. The developments *d > ǰ* and *g > ǰ* are more likely than the reverse. An original syllable-final *ǰ* may underlie the modern alternation *d ~ s* (see Poppe 1955:178, in the context of the plural suffixes *-d* and *-s*). In other cases it is impossible to determine which of the extant forms represents the older stage.

Prehistoric shifts are those phonetic changes that are already in evidence in the earliest written Mongolic. These include the development of **s > š* preceding **ï/*i*, and the split of **k* and **g* into a velar and an uvular set, depending on the adjacent vowels. The *š* sound may have been an incipient phoneme, as it also occurred syllable-finally in words of Turkic origin. In our CM notation the syllable-final *š* will be written as such, but the predictable *š-* preceding **ï/*i* will be written *s-*. The uvular allophones of **k* and **g* will not generally be distinguished in the notation, except in the section devoted to these consonants.

4.1.2. Types of phonetic shifts

Both unconditional and conditional changes may involve:

1. Place of articulation
2. Manner of articulation
3. Consonant strength, i.e. +/- aspiration or +/- voice

Examples for shifts in the place of articulation include:
CM **ki-* > Mongghul and Mangghuer *ći-*
CM **-b-* > Mangghuer *-ġ-* (usually preceding *-s-*)
CM **s* > Dongxiang *ś* before palatal vowels

Examples for shifts in the manner of articulation include
CM initial **k-* > Dagur *x-*
CM intervocalic **-b-* > *w* /*v*/*u* in most languages

Examples for shifts in consonant strength:
CM initial **b-* > Shirongol *p-* when the next syllable starts with a strong consonant
CM initial **k-* > Eastern Yugur *g-* when the next syllable starts with **d/*ǰ*

4.1.3. Patterns, preferences, and tendencies

Many consonants did not only change their own phonetic characteristics, but also developed new features (usually restrictions) concerning their distribution and combinatory properties.

Many changes occur as a consequence of restrictions on syllable structures and distributional limitations of individual consonants. Limitations of this type as found in the peripheral languages are often inspired by neighbouring languages. In Mongghul and Eastern Yugur new syllable structures evolved due to a combination of a native tendency to elide unaccented vowels and a tolerance for consonant clusters, newly acquired under the influence of Tibetan. In Mangghuer and Dongxiang there is a tendency to eliminate all syllable types that are alien to Chinese. Interestingly, before coming under Chinese influence, Mangghuer had developed a tolerance for Tibetan-type initial clusters, which are now being broken up again, as in *śiʑɔu* < **śʑɔu* < **iśćau* < **ebčeün* 'chest', and *ʂïde* < **ʂde* < **ɹte* < **erte* 'early'. Other observable preferences can not be explained from neighbouring languages, although some of them have parallels in the Turkic languages of the region.

Strength/aspiration patterns and shifts

One of the regional features shared by Mongolic and Turkic languages, but not induced by Chinese or Tibetan, are the patterns in which strong and weak consonants can be combined within a word stem.[254] However, such patterns change from language to language, and preferences vary from consonant to consonant.

[254] It is not clear in which language family this phenomenon originated. North West Mandarin and Amdo Tibetan do not share this areal tendency, probably because syllables in these languages are not just segments of words, but autonomous lexemes or at least morphemes, which helps them to retain their phonetic integrity.

Several types of strength-related changes can be distinguished. Some changes are triggered by the other consonants of the stem, including assimilatory strengthening, assimilatory weakening, and dissimilatory weakening. These typically involve initial consonants being influenced by the (intervocalic or postconsonantal) consonant starting the following syllable. There are also groups of words with initial or medial weakening or strengthening without there being an obvious trigger. Developments in opposite directions may co-occur in the same language, so that the inventory of developments in each language may become quite complicated. Compare the following small subset of EYu words, only concerning the behaviour of initial **k* and **g-* in back-vocalic stems:

EYu	CM		
ġada	**kada*	assimilatory weakening	rock
hġa-	**kaka-*	homorganic dissimilation	to choke
ġabčə-	**kabčï-*	dissimilatory weakening	to pinch
qəsə-	**kïsu-*	strong **k-* preserved as plosive	to scrape
χutağa	**kïtuga*	strong **k-* preserved as fricative	knife
qagča	**gagča*	assimilatory strengthening of initial	alone
ġašu:n	**gasïun*	weak **g-* preserved	bitter

Only some of these, partly contradictory, developments can be explained and predicted. Assimilatory weakening is shared by Eastern Yugur and the Shirongol group in a large number of words, and must have preceded most other strength-related changes in these languages.[255] Homorganic dissimilation occurs in words with the structure **kVkV-* and **tVtV-*, while the initial retains its place of articulation in sequences like **kVtV-* or **kVčV-*. Initial **k* followed by medial **č* is often weakened, suggesting that this is 'Ordos-type' initial weakening. As the Eastern Yugur phenomenon lacks the regularity seen in Ordos, there may be other factors.[256] The choice between *q-* and *x-* also has to do with the consonant starting the second syllable; *x-* usually appears before liquids, nasals, and semivowels. At first sight *qagča* < **gagča* looks like 'Monguor-type' initial strengthening, although medial *-č-* was not subsequently weakened, as would be the case in Mongghul. Moreover it is not a frequent phenomenon in Eastern Yugur.

Most of these tendencies have parallels in the other plosives and affricates of Eastern Yugur, but the interplay between any two consonants is different. Not even **k-* and **g-* in front-vocalic stems behave the same as their uvular counterparts. Initial **b-* is routinely strengthened to *p-* in the QG languages when the second

[255] Preferences with regard to strength patterns have changed over time. CM **kadum* 'spouse's relatives' has become **gadum* in Shirongol, but according to modern Mongghul the original strength pattern with strong initial and weak medial would have been ideal.

[256] Certain preconsonantal consonants could mitigate the influence of the strong consonant of the second syllable. This requires more research.

syllable starts with *č*. Perhaps the absence of **p* in the original CM system prevented the confusion that arose in the development of the consonant pairs like **k* - **g*.

Some of the developments observed in de QG languages can be seen as attempts to regularise the gappy CM consonant system:

weak	strong
**b*	<gap>
**d*	**t*
<gap>	**s*
<gap>	**š*
**ǰ*	**č*
**g* (velar)	**k* (velar)
**ġ* (uvular)	**q* (uvular)
<gap>	**h*

In the Mongolic languages of the QG region the following strength correlations can be found:

weak	strong
b	*p*
d	*t*
ǰ	*č*
ʒ	*c*
	s
ʑ́	*ć*
	ś
ʒ	*ç*
	ʂ
g (velar)	*k* (velar)
ġ (uvular)	*q* /*x* (uvular)
Ø (vocalic onset)	*h/f*

Not all these regularisation attempts apply to all languages. All QG languages show a strong tendency to strengthen the original weak word-initial consonant **b*- to *p*-, if the next syllable starts with a strong consonant. In the Monguor languages, weak **d*-, **ǰ*-, and **g*- in similar environments also tend to change into their strong counterparts **t*-, **č*-, and **k*- (which unlike *p*- already existed in the CM system). In the remaining languages this occurs more sporadically. The correlation between *h*- and *Ø* is also strongest in Monguor, although *h*- may arise elsewhere through devoicing of an initial syllable with vocalic onset. In Eastern Yugur such *h*'s tend to appear only if the initial vowel completely disappears, as in *hsəra*- < **asara*- 'to raise'.

The affricates *ʒ ʒ́ ʒ̧* seem to be incipient weak counterparts of *s ś ʂ* in some varieties of Mangghuer and Mongghul[257], which appear at the beginning of the second syllable after a (primarily or secondarily) strong initial consonant, as in the following Mangghuer examples: *piʒ́ili-* < **puśele-* < **büsele-* 'to wear a belt', *kuʒ́ier* < **köser* 'floor', *qəʒəŋ* < **gasïun* 'sour', *quʒ̧u* < **kosïun* 'beak', *puʒ̧ï* < **bisi* 'not'. Poppe already noticed the distribution of medial *s* and *ʒ* in Mongghul (1955:120). In both Monguor languages *ʒ* also appears when **s* ended up as a second member of an initial cluster, as in MgrH *sʒu ~ fuʒu* <**usun* 'water'. It cannot be determined why no voiced fricatives *z ź ʐ* were created. Perhaps it was convenient to use the Chinese-compatible consonants that were already present. *ʒ́* and *ʒ̧* (both from **ǰ*) already existed as the weak counterparts of *ć* and *ç* (from **č*).[258] This affrication of the weakened sibilants must be a relatively late development, otherwise confusion would have arisen between the 'primary' and 'secondary' affricates, e.g. *ʒ́* could have been secondarily strengthened to *ś* in some words.[259]

The assimilation and dissimilation processes serve to create the ideal word structure with regard to strength patterns, which differs from language to language. How, and when, these preferences came about is unclear; they are not obviously due to the influence of non-Mongolic neighbouring languages as so many features are.

The strength patterns favoured by Mongghul are the clearest. Preferably there is only one strong consonant, and preferably it should be the initial plosive or affricate. Words with a strong initial in CM, when any further consonants were weak, often keep their structure (e.g. *xana:-* < **kanïa-* 'to cough').[260] Other word types will emulate this structure as far as possible. Words with a second strong consonant will weaken it, e.g. *xadoŋ* < **katau(n)* 'hard'. Words with a weak initial and a strong medial consonant, will strengthen the initial and then weaken the medial, e.g. *təbde:-* < **debte-* 'to soak', *puʒ́aġ* < **burčag* 'bean', *xaldan* < **altan* 'gold'. When non-initial consonant strengths cannot move towards the left they tend to remain where they are, e.g. *maxa* < **mïkan* 'meat', *mańcoġ* < **mončag* 'crest', *ne:ten* < **noïtan* 'wet'.

The Monguor-type initial strengthening accompanied by medial weakening is what Svantesson et al. (2005:207) call flip-flop. In spite of the link between initial strengthening and medial weakening, this is not a straightforward case of metathesis,

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[257] Notably in the eccentric Mongghul dialect described by Dpal-ldan-bkra-shis and Slater (1996), although there are also examples in the other sources, e.g. *xʊʒ́ə* <**kosïun* 'beak' in Khasbaatar.

[258] In the Turkic languages Tofa and Manchurian Khakas (Fuyu 'Kyrgyz') we also find *ǰ* rather than *ž* in words featuring voicing of intervocalic **š*, e.g. Tofa *ejǐk*, Fuyu *iǰǐk* < **äšik* 'door' (Rassadin 1995:105b, Hu & Imart 1987:52). Cf. also, from further afield, borrowings like Italian *cugino* 'cousin' from older French and Japanese *reja* 'leisure' from English, where *j* stands in for the *ž* that the recipient language lacks.

[259] These instances of *ʒ ʒ́ ʒ̧* diachronically stem from *s ś ʂ*, but it does not follow that they are considered to be the weak counterparts of the sibilants synchronically. There is no evidence that an active system of strength oppositions is known to, and synchronically applied by, the speakers.

[260] Excluding the early cases of assimilatory weakening, mostly preceding **d* or **ǰ*, as shared by Eastern Yugur and Shirongol.

as it has two distinct stages. The loss of aspiration in the medial consonant is not simultaneous, and can be considered a type of dissimilation. As none of the other QG languages systematically shares the second stage, it may have developed recently.

Eastern Yugur, Baoan, Kangjia, and Dongxiang show a more varied picture. Even following the secondarily strong initial *p-* the medial consonant hat triggered the strengthening is not necessarily weakened.[261]

In both Eastern Yugur and Baoanic many instances of Ordos-type initial weakening are found, more commonly in fact than secondary initial strengthening. Ordos (and other central Mongolic dialects including Chakhar) have a preference for weak initials when a strong consonant follows, while the three literary central Mongolic languages have kept the CM strength constellations unchanged, e.g. they preserve CM **tata-* 'to pull' with two strong consonants, as opposed to MgrH *təda-* and Ord *data-*. Such preferences for certain strength patterns may be related to ancient accent patterns.

In Eastern Yugur, and occasionally elsewhere, homorganic sequences deviate from the general development, in that the first consonant is replaced by *h*, as in EYu *hta-* < **duta-* 'to lack', *hkü:r* <**köküür* 'snuffbottle'.[262] CM **tata-* 'to pull' has produced dissimilated forms in Eastern Yugur and throughout Shirongol.

The second element of initial consonant clusters is generally weakened if the first element is strong, e.g. MgrH *sġal* < **sakal* 'beard', *xgə* < **hekin* 'brain', *ʂda:-* < **sïta-* 'to light', BaoÑ *hʑa-* < **kuča-* 'to bark', BaoD *fgor* < **hüker* 'bovine'. This is logical as the second element goes back to the syllable-initial consonant of the second syllable. After weak initials strong second elements are allowed, e.g. MgrH *ntəra:-* < **untara-* 'to sleep' as opposed to *nde:* < **ende* 'here'.

Incidentally the strengthening phenomena observed in initial position can be seen in the middle of words. This entails the strengthening of the consonant starting the second syllable by that starting the third, e.g. MgrH *kaʑi* < **egeči* 'elder sister', MgrM *dapuʒï* < **dabusun* 'salt', Kgj *aŋkəǰiɣ* < **iŋgarčag* 'packsaddle'.

Initial consonant clusters

Initial consonant clusters appear in languages that underwent Tibetan influence: Eastern Yugur, Mongghul, Mangghuer, Baoan, and Kangjia, but - not coincidentally - only marginally in Dongxiang.[263] Clusters in native words probably came about after a large amount of Amdo Tibetan loanwords created a tolerance for them.[264] On

[261] In case of Eastern Yugur the descriptions of Junast and Bolčuluu disagree. Junast's notation suggests that most non-initial strong consonants were weakened. It is not clear whether the varieties they describe are actually different with respect to strength patterns.

[262] Whether the second element of the resulting clusters is strong is another point of disagreement between the Eastern Yugur sources.

[263] The few documented clusters in Dongxiang (*sd-*, *sʒ-*) can be alternatively analysed by assuming a voiceless vowel between the cluster elements. As Dongxiang apparently lacks Tibetan loanwords, Tibetan influence on the phonology would be unexpected.

[264] The structural similarity between the QG Mongolic clusters and those of local Tibetan is discussed by Janhunen 2001.

the other hand, two non-Tibetan phenomena shared by the QG languages, word-final accent and vowel devoicing, were certainly helpful in creating the clusters. Not all clusters that are allowed in loanwords from Tibetan are necessarily found in native words. Reversely not all clusters found in the Mongolic languages are found in the neighbouring Tibetan dialects.[265] There is, however, a large overlap. Amdo Tibetan and the QG languages agree that consonant clusters should have no more than two elements, and that the first element should not be a plosive or affricate.

Clusters typically arise when the (typically high and short) vowel of the first syllable is elided, but whether this elision will take place depends on the resulting structure. If this structure is allowed in a given language, the vowel may be elided. Normally the elided vowel is either the initial vowel, which is followed by a nasal or liquid, or the non-initial vowel preceded by a fricative.

The number of permissible clusters varies from dialect to dialect, but they share some general characteristics. Rather than attempting to list all documented clusters we will have a look at the major cluster types that are permitted and what their origins are. The clusters typically consist of:

1. **Nasal + Plosive/Affricate**, such as *mb-*, *nd-*, *nt-*, *ŋġ-*.

These typically developed from a CM sequence **V + Nasal + Plosive/Affricate**, as in EYu *nda:s-* < **umdaas-* 'to be thirsty', see also **humba-* 'to swim', **iŋgarčag* 'packsaddle', **uŋgasun* 'wool'. Words with initial nasal such as **nidün* 'eye' normally do not develop initial clusters of this type. The nasal first member may go back to **l*, as in Kgj *ńǐɣe* < **elǰigen* 'donkey'. In Baoan the initial *n* in clusters has often been added without a known reason, as in BaoD *nda-* < **ide-* 'to eat', *nʑiə-* < **üǰe-* 'to see'. The same phenomenon occurs sporadically in other languages, e.g. MgrH *ŋġua:-* < **ugïa-* 'to wash', Kgj *ndasun* < **hutasun* 'thread'.

In rare cases the cluster may stem from a **VCVC* sequence, as in Kgj *mgɔ* < **emegen* 'old woman'.

2. **Liquid + Plosive/Affricate**, such as *rb-*, *rd-*, *rg-*, *ld-*.

These developed from **V + Liquid + Plosive/Affricate**, as in MgrH *rdem* < **erdem* 'knowledge', see also **erte* 'early', **örgeesün* 'thorn', **urtu* 'long'. In some of these clusters the *r* or *l* was almost certainly secondarily inserted, as in EYu *łdeɣe-* < **itege-* 'to believe', MgrH *rʑu:r ~ ʑu:r* < **hüǰüür* 'tip'.

3. **Fricative + Plosive/Affricate**, such as *hd-*, *χʒ-*, *fg-*, *sġ-*, *sʒ-*, *ʂd-*, *śʒ-*.

These have diverse origins. They usually developed from **Fricative + V + Plosive/Affricate**, as in EYu *sda:sən* < **sudasun* 'vein', see also **hekin* 'head', **hutasun* 'thread', **sidün* 'tooth'. Occasionally *VV* is elided as well, cf. MgrH *sġan*, Kgj *sχɔ* < **saïkan* 'beautiful', BaoÑ *hda* < **huuta* 'bag'. Some clusters stem from **V + Fricative + Plosive/Affricate**, e.g. EYu *sqar-* < **iskir-* 'to whistle', BaoÑ *ʂgel-* < **öskel-* 'to kick'. Other cases go back to **Plosive + V + Plosive/Affricate**, as in EYu *hta-* < **tata-* 'to pull', BaoÑ *hdəŋ* < **katau(n)* 'hard'. In cases like EYu *xǰa:r* < **gagčaar* 'alone', MgrH *ʂde:-* < **ügtee-* 'to uproot', *hdəl-* < **hogtal-* 'to cut down', the initial fricative may reflect the whole collapsed initial syllable rather than specifically the initial or the preconsonantal consonant. In Mongghul it is not

[265] The various Mongolic languages received their loanwords from different Amdo Tibetan donor dialects. See Róna-Tas 1962, Nugteren & Roos 1998.

uncommon for the fricative first element to go back to devoiced **r*, as in *ʂde* < **erte* 'early'. The initial fricative may also go back to vocalic onset (> secondary *h*-), as in EYu *hča:n* < **ačïan* 'load', MgrH *ʂdogo:n* < **ödken* 'dense', BaoÑ *hgu-* < **ükü-* 'to die'. Rarely the cluster is the result of the contraction of a **VCVC* sequence, as in EYu and MgrH *sgi:* < **isegei* 'felt'.

Some less common categories include:

4. **Fricative + Nasal**, from **Fricative + V + Nasal**, as in MgrH *ʂnaġa* < **sïnaga* 'ladle'. EYu *n̥i:-* < **hinie-* 'to laugh' has the same origin, but does not contain a cluster synchronically[266].

5. **Fricative + Liquid**, from **Fricative + V + Liquid**, as in EYu *šra* < **sïra* 'yellow', *šlə* < **sili* 'nape'. Cases like EYu *l̥a:n* ~ *ła:n* < **hulaan* 'red' have the same origin, but cannot be considered to contain clusters synchronically.

6. **Fricative + Fricative,** from **Fricative + V + Fricative**, as in EYu *hsʉn*, BaoÑ *hsөŋ* < **hüsün* 'hair', from **Secondary h + V + Fricative**, as in EYu *hsəra-* < **asara-* 'to raise', or from **Fricative + V + Liquid,** as in BaoGt *xʂa-* < **karïa-* 'to swear'.

7. **Plosive + Fricative,** from **Plosive + V + Fricative**, as in BaoD *tχuŋ* < **togaan* 'cooking pot'.

8. **Plosive + Liquid**, from **Plosive + V + Liquid**, as in Kgj *drasun* < **darasun* 'wine'.[267]

Preferences regarding word structure may change with the linguistic pressures. In languages where Chinese influence is growing at the expense of Tibetan, we can observe that the Tibetan-type clusters are now being simplified as in BaoD *duŋ* < *ʂduŋ* < **sidün* 'tooth', *gu-* < *fgu-* < **ükü-* 'to die', or broken up as in MgrM *muba-* < *mba-* < **humba-* 'to swim', *suʒu* < *sʒu* < **usun* 'water'. This is observable because the new word shape does not 'reinstate' the original shape, but developed from the form with initial cluster. Many of these changing preferences can even be observed by comparing data from the 1880s, 1950s and recent descriptions.

The order of the developments is not always self-evident. The Eastern Yugur forms *sʉkel-* < **öskel-* 'to kick' may have developed before or after the loss of the initial vowel, but *qutul-* < **hogtal-* 'to fell' most likely broke up the cluster before eliding the initial vowel, because an initial cluster *qt-* seems less likely to have existed. In MgrH *ʂdogo:n* < **ödken* 'dense' the cluster *-dk-* must have been dissolved into *-tVg-* (with consonant strength moving to the left) before the new *-t-* could trigger the devoicing of the initial vowel and the development of the initial cluster.

Unwanted consonants at the end of the syllable

The treatment of the CM medial consonant clusters in Shirongol can be seen in the light of newly developed restrictions on the distribution of individual consonants. This affects the syllable-final consonants. The dialects with the lowest tolerance of

[266] Voiceless nasals in the vicinity of, or as a vestige of, voiceless preradical *s-* are also found in some varieties of Amdo Tibetan.

[267] The last two categories of uncommon cluster types are absent from Amdo Tibetan.

syllable-final consonants tend to be those with the strongest Chinese influence.[268] These include Kangjia and Dongxiang, Mangghuer, and some dialects of Mongghul. On the other hand, the development of several final obstruents > *-r* in Dagur is not inspired by Chinese.

The maximum number of final consonants in Mandarin is three: *n*, *ŋ*, and *r [ɻ]*, but in fact *n* and *ŋ* have often merged in local dialects of North West Mandarin. Needless to say these finals are allowed in all Shirongol languages. All further syllable-final consonants (**b*, **g*; **d*, **s/*š*, **m*, **l*, **r*) are to some degree undesirable in several Shirongol languages. A number of solutions are available to 'fix' stems with such consonants at the end of the syllable.

1. The most straightforward solution is elision, which is practiced most systematically by Dongxiang in the case of **-b*, **-g* and **-r*, e.g. *ʒo* < **jöb* 'correct', *ça* < **čag* 'time', *qa* < **gar* 'hand'.

2. Changing the offending consonant into a permissible one, e.g. **-m* > *-ŋ* or **-l* > *-r*, as in MgrM *saŋ* < **sam* 'comb', *ġar* < **gal* 'fire'.

3. Changing the word structure by means of an epenthetic vowel, as in MgrM *maŋġuʒï* < **maŋgus* 'anthropophagous ogress', MgrH *dəge-* < **hedke-* 'to cut', allowing the pronunciation of the separated consonants to stay intact.

4. Manoeuvering the offending consonant into a permissible position by means of metathesis, as in Kgj *turğu* < **toarag* 'earth'.

5. Changing the syllabic analysis without changing the actual word shape, as in **har-ban* > Dgx *ha-roŋ* 'ten', where the **b* was absorbed into the second vowel, and **r* became the initial consonant of the second syllable. This has also happened to the compounds *ġa-duŋ-me-kie* < **ka-dum e-ke* 'mother-in-law', *gie-re-ʒen* < **ger e-ǰen* 'head of the household', *ko-ro-loŋ* < **köl o-ran* 'footprint, track' (as opposed to *ġaduŋ* < **kadum* 'inlaws', *gie* < **ger* 'house', *koŋ* < **köl* 'foot').

In practice these solutions may coexist or alternate in a given dialect, and may even be used in the same word, as in Dgx *ku-* ~ *kuru-* < **kür-* 'to reach'. Although exceptions abound, each dialect usually has a preferred solution for each consonant. Final **-m* becomes *-ŋ* in Mangghuer, Kangjia and Dongxiang[269]. However, the original pronunciation may be salvaged by means of an epenthetic vowel, as in Dgx *amusa-* < **amsa-* 'to taste'. Syllable-final **-g* is normally elided in Dongxiang, but it too may be preserved, as in *buğulie-* 'to close with a stopper' < **bögle-*.

As in case of the initial consonant clusters, preferences and tolerances may change over time. For instance, final **-d* of nouns has tended to become **-r* in Mongghul, as in *ćidar* < **kïtad* 'Chinese', *teved* ~ *tever* < **töbed* 'Tibetan', but in some Mongghul dialects final *-r* has apparently become problematic at a later stage, leading to forms such as Danma Mongghul *ćidari, ti:wari*.

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[268] It is noteworthy that even in the dialects with the most Sinicised phonologies some consonants are preserved despite not existing in Chinese, such as uvular *q-* and *ġ-*.

[269] Confusion between word-final *-m* and *-n* is also seen in Mongghul, which was influenced by Chinese to a lesser degree. However, in Mongghul this confusion may also lead to original *-n* becoming *-m*, as in *χardam* < **altan* 'gold'. Similar confusions can also be seen in (Turkic) Western Yugur, but seem to be absent from Eastern Yugur.

In the following pages the main modern developments of each CM consonant will be discussed. We will start with the 'independent' development, i.e. the default development if no other influences are at work. This normal development is not always statistically predominant. Most consonants can disappear completely under given circumstances.

A global inventory (excluding **š*) is shown in the table below. It only aims to give an impression of the diversity of solutions within languages and between languages, and does not take into account the frequency of any solution in a given language or possible differences between the development of verb and noun stems (the former more often preserve final consonants by means of an epenthetic vowel). The reduction of the number of final consonants in Dagur may be completely independent from Chinese. Eastern Yugur and the best-known Mongghul dialects tend to preserve most final consonants. These languages are included here for the sake of comparison.

	**b*	**g*	**d*	**s*	**m*	**l*	**r*
Dag	*r*	*r*	*r*	*r*	*m*	*l*	*r*
EYu	*b*	*g/ġ*	*d*	*s*	*m*	*l*	*r*
MgrH	*b*	*g/ġ*	*d/r*	*s/sV*	*m/n*	*l*	*r*
MgrH -NG	*b*	*g/ġ*	*d/r*	*s/sV/ʒV*	*m/n*	*r/ Ø*	*r*
MgrH -Do	*ʔ ~ Ø*	*ʔ ~ Ø*	*r/ Ø / dV*	*s/sV*	*n*	*l*	*r*
MgrH -DS	*b*	*g/u*	*ri/ dV*	*sV*	*n*	*li*	*ri*
MgrM	*Ø*	*g/ġ/ğ/Ø*	*Ø*	*sV/ʒV*	*ŋ*	*r*	*r*
BaoD	*b*	*g/ġ (x, χ, ɣ)*	*dV*	*s/sV*	*m*	*l*	*r*
BaoGt	*ʔ*	*ğV/ Ø*	*ʔ*	*sV*	*m*	*l*	*r*
BaoÑ	*bV*	*g/ġ*	*d/r*	*s/sV/r*	*m*	*l*	*r*
BaoX	*ʔ*	*g/ġ*	*dV*	*sV*	*m*	*l*	*r*
Kgj	*ʔ*	*g/ġ/ɣ/ğ/ğV/ʜ/ Ø*	*dV ʔ*	*sV*	*ŋ*	*r/n*[270]	*r*
Dgx	*Ø*	*Ø/u/ğV*	*dV ʔ*	*sV*	*ŋ*	*ŋ*	*Ø*

4.2. Development of CM **b*

4.2.1. Default (non-shift)

Weak **b* occurs in all positions:
Initial: **bau-* 'to descend', **bayar* 'joy', **beye* 'body', **bidüün* 'coarse', **boganï* 'low, **böelǰi-* 'to vomit', **böere* 'kidneys'.
Intervocalic: **dabusun* 'salt', **ebesün* 'grass', **kubïa-* 'to divide', **sïbaun* 'bird', **yabu-* 'to go'.

[270] The reflex *-n* appears regularly in deverbal formations with the ending *-dan* < **-dAl.*

Postconsonantal: **dörben* ‘four’, **humba-* ‘to swim’, **karbu-* ‘to shoot’, **kirbei* ‘edge’, **nïlbusun* ‘tears’.
Final: **ab-* ‘to take’, **eb* ‘peace’, **ǰab* ‘interval’, **ǰöb* ‘correct’.
Preconsonantal: **ebčiün* ‘chest’, **kebte-* ‘to lie down’, **nabčïn* ‘leaf’, **tobčï* ‘button’, **tübsin* ‘even’.

In general, **b* tends to be preserved as a weak bilabial plosive word-initially and postconsonantally after **m*.

4.2.2. Shifts in the place of articulation

The place of articulation is generally quite stable. In Mangghuer preconsonantal **b* tends to become *ġ*, cf. **tobčï* ‘button’, **nabčïn* ‘leaf’ (see below). In Dagur, intervocalic *-b-* may develop into *-ɣ-*, apparently via *-w-*, as in *šɔyɔ:* < **sïbaun* ‘bird’. This mostly happens after rounded vowels.[271] Incidental cases occur in other languages, e.g. Dgx *ġuğa-* < **kubïa-* ‘to divide’, EYu *dogšün* < **tübsin* ‘flat, level’.

In the case of EYu *daɣqur* < **dabkur* ‘double’ and *ǰuɣqan* < **čïbukan* ‘jujube’, the *-ɣ-* may just represent preaspiration, in which case *-b-* was elided altogether.

4.2.3. Shifts in the manner of articulation

The intervocalic development of **b* into a semivowel or fricative *w* (*ʋ*, *β*, *φ*, *ŭ*) is common in Eastern Yugur and in all Shirongol languages except Mangghuer (cf. **kabar*, **ta(l)bï-*). In Mongghul, and to a lesser extent Baoan, the same development can also be found word-initially (cf. **bara-*, **beri*). This is not seen in Dongxiang, Kangjia, and Mangghuer, suggesting that the Baoan and Mongghul cases developed independently.

In Eastern Yugur, the development **b* > *β* in word-initial position is only documented as a sandhi phenomenon. Words that are listed with initial *β-* as a ‘standard form’ are in fact words that are usually or exclusively found after another word, e.g. EYu *βai-na* ‘is’, *βɔlğɔn* ‘every’, *βurü* ‘every’ (the latter two both placed after the noun) from **baï-na*, **bolgan*, **büri*.

In intervocalic position the development of *w* > *Ø* is common in Eastern Yugur as well as Shirongol. In Eastern Yugur this seems limited to words with labial vowels, such as *ǰɔ:- (*< **ǰɔβɔ-)* < **ǰoba-* ‘to suffer’, EYu *šu:n* (< **šəβu:n*) <**sïbaun* ‘bird’. In Shirongol this type can also be found. Many examples are like Dgx *otu-* < **ebed-* ‘to be ill’, Dgx *osuŋ* < **ebesün* ‘grass’, in which the labiality is absorbed into

[271] Also in Dag *ǰɔɣ*^{w}- < **ǰoba-* ‘to suffer’, *suɣ*^{w} < **sübe* ‘small hole, eye of a needle’. Interestingly, Enkhbat chose to write the *-ɣ-* in these words with the grapheme <*w*> in his 1983 dictionary, which is in most regards merely an enlarged version, transliterated into Pinyin, of his 1984 dictionary. At the 2009 PIAC I had the opportunity to ask Prof. Enkhbat, who is himself a native speaker of Dagur, about this. The friction of *ɣ* in words like *šɔɣɔ:* ‘bird of prey’ was not audible to me. In other phonetic environments, e.g. in *deɣi:* ‘bird’, *ɣ* can be clearly heard, and is not interchangeable with *-w-*.

the vowel[272]. Baoan cases include BaoÑ *kuŋ* < **köbeün* ‘son’, BaoX *su:kə* < **sibüge* ‘awl’. Mongghul also has many cases with little or no trace of **b*, e.g. *te:rə- ~ to:rə-* < **teberi-* ‘to embrace’. In addition we can find the development **b* > *y* in Shirongol (when followed by *i*), in words like BaoD *χitə-* < **kabïd-* ‘to swell’, MgrH *tayin* < **tabïn* ‘fifty’, Dgx *tai-* < **tabï- (*< **talbï-)* ‘to put’. In Mongghul this may also occur when **b* is followed by other vowels, cf. *ver ~ yer* < **(h)eber* ‘horn’, *kavaġ ~ kayaġ* < **kebeg* ‘bran’. In Mangghuer, **b* is stable in such words, with the exception of *yɔu-* < **yabu-* ‘to walk’. The treatment of intervocalic *-b-* constitutes one of the systematic differences between the two Monguor languages:

MgrM	MgrH	CM	
çubuġa	*ćuġa*	**čïbuga*	jujube
qabar	*xavar*	**kabar*	nose
ʂïbau	*śau ~ śu:*	**sïbaun*	bird

Postconsonantal **b* may appear as **b* or as a fricative. The plosive pronunciation is preserved after **m* in all languages. After **l* and **r* it usually develops into the same fricative as intervocalic **b*. This is the case in Eastern Yugur and Shirongol (Mangghuer excepted). In most Shirongol dialects, the **b* in the numerals **gurban* ‘three, **dörben* ‘four’ and **harban* ‘ten’ has disappeared or absorbed into a diphthong. In Mongghul this is also common in other words, e.g. *ćire:* < **kirbei* ‘edge’. Only Mangghuer is quite consistent, as is clear from the following comparison[273]:

EYu	MgrH	MgrM	Dgx	CM	
harβan	*xar(v)an*	*xarbaŋ*	*haroŋ*	**harban*	ten
hurβa-	*fura:-*	*xurba-*	*fura-*	**hurba-*	to turn
čɔlβɔn	*ćolbaŋ*	*çorbaŋ*	---	**čolban*	Venus
---	*ćirval*	*çərbar*	*ġïwa*	**kïlbar*	easy
mba-	*xʊmba:-*	*umba-*	*unba-*	**humba-*	to swim

In Dagur original intervocalic **b* may become the labial element in a diphthong, as in *šaur* < **šawar* < **sïbar* ‘mud’, *xəur* < **(h)eber* ‘horn’. However, when intervocalic **b* was followed by **i* or **ï*, plosive *b* was retained, as in *xɔbil-* < **kubïl-* ‘to change’, *tab*^{y} < **tabïn* ‘fifty’. The distinction between these two developments may be useful for reconstruction purposes, as in the case of Dag *xaud-* < **kabud-* (rather than from the alternant **kabïd-*) ‘to swell’, and *xab*^{y}*rəɣ* < **kabïrga* (rather than from the alternant **kaburga*) ‘rib’. However, this has to be used with caution. In some words *-b-* is preserved unexpectedly, apparently due to secondary

[272] Initial /*o*/ is pronounced [*uo*], whether or not there was a **b* in CM.
[273] An especially chaotic development is seen in **nïlbusun* ‘tears’.

palatalisation, as in *ǰeb^{y}ǰ* ‘corner of the mouth’, *ǰib ~ ǰib^{y}* ‘rust’ (as if from **ǰabïǰï* and **ǰibi* instead of the CM forms **ǰabaǰï* and **ǰebe* suggested by other languages).[274]

The incidental development **b* > *m* can be found in several languages (not counting ancient variants such as **kabar* ~ **kamar* ‘nose’). Examples include Dag *kəm^{y}-* < **kebi-* ‘to ruminate’, Dgx *sumuğə* < **sibüge* ‘awl’.

4.2.4. Strength/aspiration shifts

In both Eastern Yugur and the Shirongol languages initial **b-* tends to become *p-* [*p^{h}-*] when the next syllable starts with a strong consonant, i.e., **t*, **č*, **k* or **s*. It is irrelevant whether the initial syllable ends in a vowel or consonant. This is similar to the strengthening phenomena seen in initial **d-*, **ǰ-*, **g-/*ġ-* discussed below. Although the triggers are the same, there are some points of difference. In the first place the other consonants already had strong counterparts **t-*, **č-*, **k-/*q-* in the CM period, whereas **b-* did not have a counterpart **p-* in initial position. In the second place the development **b-* > *p-* is much more common than the strengthening of the other weak obstruents, which is only a systematic development in Mongghul. The emergence of a previously absent *p-* is also shared by neighbouring Turkic languages Western Yugur and Salar[275], which belong to different subgroups. This seems to make this a rare areal feature which does not stem from Chinese or Tibetan. It is not clear in which language the phenomenon originated[276], but in both Mongolic and Turkic it has the effect of making the consonantism more symmetrical.

Words with the right structure to trigger the appearance of *p-* include **bagta-* ‘to fit’, **basa* ‘also’, **batu* ‘strong’, **berke* ‘difficult’, **bötege* ‘bird’s crop’, **bučal-* ‘to boil’, **buka* ‘bull’, **burkan* ‘Buddha’, **büte-* ‘to finish’). Some of the more widespread cases are the following:

EYu	MgrM	BaoD	Dgx	CM	
pəčə-	*puźi.ġ*	*pući-*	*piʒï-*	**biči-*	to write
pərćaġ	*puźiġ*	*pućiaχ*	*puʒa*	**burčag*	bean
pəsəi	*piźi.li-*	*se*	*piśie*	**büse*	belt
putü:	*pudiau*	---	*pəźie*	**biteü*	double handful
pʉtən	*puduŋ*	*putuŋ*	---	**bütün*	whole

This is by no means a general rule. Especially words with a non-high vowel in the first syllable may retain the weak *b-*, cf. EYu *belče:r* < **belčier*, EYu *bɔtɔğɔn* < **botagan* ‘camel foal’, EYu *be:ǰən*, BaoÑ *bećaŋ* < **bečin* ‘monkey’.

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[274] In the words mentioned here the palatalisation can be explained by the phonetic environment.

[275] The implications for the Turkic system are different, as initial **t-*, **č-*, **k-* also developed weak initial counterparts that did not exist earlier.

[276] The incidental strengthening of initial **b-* found in several Turkic subgroups cannot easily be explained from the phonetic environment, and does not prove that this tendency originates in Turkic.

In Shirongol the strong consonants that gave rise to the *p-*, tend to be weakened themselves afterwards.[277] This is the rule in Mongghul, but in Mangghuer and Dongxiang weakening is also more common after *p-* than after other strong initials. In Eastern Yugur this is not necessary, at least in Bolčuluu's analysis. Weakening of medial **s/*š* is possible only in the Monguor languages.

Svantesson's observation (2005:207) that the strengthening of **b* "is not triggered if the distance between it and the causing consonant is more than one short vowel" is partially correct, in that there are no cases of strengthening before an original double or complex vowel. There are however several words like **bagta-* 'to fit', **burčag* 'pea', **burkan* 'Buddha', **bürkü-* 'to cover' that feature strengthening of **b* in spite of the preconsonantal weak consonants. The factor is not whether a strong consonant follows later in the stem, but specifically the next syllable has to start with a strong consonant. One possible reason why strengthening is not as widespread in Shirongol in stems like **bos-* 'to rise', **bös* 'fabric', **bars* 'tiger' is that these were originally monosyllabic; perhaps they developed their present final vowel after strengthening of **b-* was largely completed.[278] However, Eastern Yugur did in fact strengthen *b-* in *pɔs-* < **bos-* 'to rise' and *pös* < **bös* 'fabric', and some forms with *p-* can be found in Shirongol as well.

That strengthening did not occur before long vowels or diphthongs seems to be confirmed by EYu *bü:sən*, Dgx *bosuŋ* < **böesün* 'louse'. However, words of this structure are rare (for **baasun* 'dung' see below). This in turn suggests that the loss of vowel length occurred after the *b* > *p* development was completed.[279]

The first vowel of such words, squeezed between *p-* and another voiceless consonant, is often devoiced, and in some cases subsequently lost. In the following Baoan words the entire first syllable has been devoiced and subsequently lost:

BaoD	CM	
sa < **pa̯sa*	**basa*	also
śi < **pi̯śi*	**bisi*	not
se < **pu̯se*	**büse*	belt
təkə < **pu̯təgə*	**bütegei*	don't (prohibitive)

Some similar cases exist in other languages, e.g. EYu *hčəlğa-* < **bučalga-* 'to boil' (*h-* remains as a voiceless vestige of the initial syllable), MgrH *śüre:-* < **bisire-* 'to believe'.

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[277] It is impossible to say how much time elapsed between initial strengthening and medial weakening, but they did not occur simultaneously as the latter is not found systematically in all QG languages.

[278] It may also be relevant that the syllables in which strengthening takes place are unaccented, so that monosyllables are automatically excluded from this development. Note that in Dongxiang the added final vowels do not take the accent, e.g. *ˈbosï* < **bös* 'fabric'.

[279] This would mean that the strengthening is no longer active, perhaps with the exception of Mongghul, where the strength patterns are most systematic.

Given that in the CM period **b* lacked a counterpart **p-*, it is interesting that this development is more common than some of the parallels such as **d-* > *t-* [*t*^{h}-], **ǰ-* > *č-* [*č*^{h}-].

In Mangghuer the same strengthening can be seen in medial *b*, when this is followed by s of the ending *-sUn*, as in *liŋpuʒï* < **nïlbusun* 'tear', *qapuʒï* < **kabïsun* 'rib', *dapuʒï* < **dabusun* 'salt'. In Mangghuer a *-p-* may even appear if *-m-* is followed by *-s-*, as in *ćimpəʒï* < **kïmusun* 'nail', *sanpəʒəġ* < **sarïmsag* 'garlic'. A superficially similar case is EYu *pəǰü:n* < **ebčeün* 'chest', in which the preconsonantal **b* secondarily became the initial.[280]

Apart from this largely predictable strengthening of **b-* there are two other groups of words with *p-* in Eastern Yugur and Shirongol.

The first group developed *p-* < **b-* in Eastern Yugur, but without the usual conditions, as in *pa:-* < **baa-* 'to defecate'[281], *pu:-* < **boa-* 'to wrap', *pü:re* < **böere* 'kidney'.[282]

In a second group *p-* appears instead of expected *h-*, e.g. Kgj *puta* < **huuta* 'bag', Kgj *puta-* < **hutu-* 'to smoke', EYu *pɔdən* (= *hɔdən*) < **hodun* 'star'. Normally Eastern Yugur does not even have the reflex *f-* < **h-* preceding rounded vowels. Although it cannot be excluded that these instances of *p-* are relics from an older stage, it is puzzling why these isolated cases should be preserved. Eastern Yugur and Mongghul *pi:le-* 'to blow' probably involve an onomatopoeic rather than a phonetic development from **hülie-*.

Postconsonantal *-p-* in Dagur seems to be completely unrelated to the secondary *p*'s in the QG languages. As hinted at by Doerfer (1984:75), instances of postconsonantal *-p-* in Dagur may be relics of the consonant *-p-* of Proto Mongolic (lost via **h-* in initial and intervocalic positions), as in *čɔlpun* 'Venus', *əlpur* 'abundant', *xumpa:-* 'to swim', *xurpa:* 'with everted eyes'. *-p-* does not appear automatically in words of this structure, cf. Dag *nəmb-* < **nembe-* 'to cover', *ñɔmb-* < **nïlbu-* 'to spit', *tarbəɣ* < **tarbagan* 'marmot'. However, as the presence of *-p-* is not confirmed by other languages, it will only be reflected in the CM reconstructions of these words in this section and the comparative supplement. Elsewhere they will appear as **čolban*, **elbeg*, **humba-*, **hurba-*.[283]

4.2.5. Syllable-final developments

At the end of the syllable the Shirongol languages feature a couple of special developments.

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[280] See below for the similar Eastern Yugur strengthening of *g* in the *-gt-* cluster.

[281] One may argue that the verb may owe its *p-* to the derived Eastern Yugur noun *pa:sən* < **baa-sun* 'excrement', in which the *p-* can be explained as being triggered by the following *-s-*. However, it is not otherwise known that strengthening of **b-* is possible before a long vowel.

[282] It may not be a coincidence that Western Yugur has (equally inexplicable) *p-* in the cognate words *poɣ-* < CT **bog-* 'to strangle, tie up' and *peɣïr* < CT **bögür* 'kidney'.

[283] The *-p-* in 'Venus' is supported by its Turkic cognate. However, CT **körpe* 'newborn lamb' corresponds to Dag *kurb*^{w} with *-b-*. Although only a handful of Dagur words with postconsonantal *-p-* survive, Mongolic words in Tungusic provide additional evidence.

In noun stems word-final *-b* is elided in MgrM and Dgx *ʒo* < **ǰöb* ‘correct’. This is likely a Chinese-inspired development. In the verb stem **ab-* ‘to take’ the final *b* was preserved in MgrM *apu-*, MgrH *abu-*, Kgj *abi-* by absorbing the connective vowel into the stem. In Dongxiang **ab-* was replaced by the inexplicable form *agi-*[284]. Unfortunately **ǰöb* and **ab-* are the only two stems with word-final **b* which are reasonably widespread in the QG languages.[285]

In Dongxiang, preconsonantal **b* follows the same route as word-final **b*. It is lost without a trace in **čabčï-* ‘to chop’, **nabčïn* ‘leaf’, **tobčï* ‘button’. An exception may be Dgx *anśie-* < CM **ebsie-* ‘to yawn’. This development can perhaps be explained by means of an intermediate form **emsie-*, which may have a parallel in Dgx *daŋsuŋ* from CM **dabusun* ‘salt’, perhaps through intermediate stages **dabsun* > **damsun*.[286]

In Mongghul, preconsonantal **b* may remain unchanged, but it will often be replaced by *s*, *ʂ*, *ś* preceding sibilants or affricates in words like *tebźə ~ teśźə* < **tobčï* ‘button’ (cf. also **ebčeün* ‘chest’, **ǰabsar* ‘interval’, **nabčïn* ‘leaf’, **tübsin* ‘level’). The *b* may itself disappear but leave the vowel rounded, as in *tudie:-* < **debte-* ‘to soak’, *ćüġa-* < **ǰabka-* ‘to lose’. There are many free variants between these solutions.

In Mangghuer, preconsonantal **b* tends to be replaced by *-ġ-*, as in *laġći* < **nabčïn* ‘leaf’, *təġźi* < **tobčï* ‘button’. In Kangjia there are some forms with **b* > sibilant as in Mongghul, e.g. Kgj *lašǰɔ ~ laɻčɔ* < **nabčïn*, Kgj *išǰɔ ~ iɻčɔ* < **ebčeün* ‘chest’, thus deviating from both Baoan and Dongxiang. These changes can not be explained as Chinese-inspired since a change *b* > *ġ* or into a sibilant does not result in a more acceptable word structure.

In Mongghul, preconsonantal *b* occasionally triggers the appearance of a secondary labialisation after a *-bk-* cluster, e.g. Mongghul (Narin Guol) *çuġuaː-* < *ǰabka-* ‘to get lost’.[287] This phenomenon is also found in Ordos and Amdo Tibetan.

4.3. Development of CM **d* and **t*

4.3.1. Default (non-shift)

Weak **d* occurs in all positions:
Initial: **dabusun* ‘salt’, **daun* ‘sound’, **dere* ‘pillow’, **dogal-* ‘to limp’, **düüre-* ‘to fill’.
Intervocalic: **eüden* ‘door’, **kadu-* ‘to harvest’, **kedün* ‘how much’, **sidün* ‘tooth’, **üdür* ‘day’.
Postconsonantal: **dumda* ‘middle’, **ebde-* ‘to destroy’, **höndür* ‘high’, **kölde-* ‘to freeze’, **kündü* ‘heavy’.

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[284] It is probably an altered form of **ab-*, inspired by the Dgx verbs derived from Chinese stems by means of **ki-* ‘to do’.

[285] CM-*b* was not a very common final consonant, but other (nominal) stems existed, e.g. **eb* ‘peace’, **ǰab* ‘interval’, **kob* ‘gossip’, **sub* ‘otter’.

[286] See Nugteren forthcoming.

[287] Similar cases, but with the preceding **b* not actually in preconsonantal position, are EYu *yawəğuar* < **yabɒgaar* ‘on foot’, BaoGt *suɛ* < **büse* ‘belt’.

Final: **čad-* ‘to be satiated’, **ebed-* ‘to hurt’, **ed* ‘goods’, **kïtad* ‘Chinese’, **söged-* ‘to kneel’.
Preconsonantal: **čidkör* ‘demon’, **kadku-* ‘to prick’, **kudku-* ‘to stir’, **sedkil* ‘heart’, (alternating with *č, s*): **hedke-* ‘to cut’, **ödken* ‘thick’.

Strong**t* occurs in all syllable-initial positions:
Initial: **taa-* ‘to guess’, **tasura-* ‘to break’, **teberi-* ‘to embrace’, **tobčï* ‘button’, **tülien* ‘firewood’.
Intervocalic: **butara-* ‘to fall apart’, **kötel-* ‘to lead by the hand’, **küiten* ‘cold’, **metü* ‘like’, **sïta-* ‘to catch fire’.
Postconsonantal: **altan* ‘gold’, **bagta-* ‘to sink’, **kamtu* ‘together’, **kebte-* ‘to lie down’,**togta-* ‘to stop’, **ügtee-* ‘to uproot’.

The default development of **d* and **t* is to leave them unchanged. Final and preconsonantal **d* is often changed in several Shirongol languages.

4.3.2. Shifts in the place of articulation

In Dongxiang **d* and **t* have become alveolopalatal affricates *ʒ́* and *ć* when followed by the vowel **e*, which in Dongxiang often resulted in a diphthong that palatalises preceding dentals **d* and **t*. Cf. *ʒ́iausï-* < **debis-* ‘to spread’, *ʒ́ien* <**deel* ‘garment’, *ćiemu* < **temür* ‘iron’, *ćiauruŋ* < **teriün* ‘head’, also medially: *funʒ́ie-* < **hülde-* ‘to expel’, *iʒ́ie-* < **ide-* ‘to eat’, *oćiau* < **ötegü* ‘old’. This palatalisation has also befallen **s* in similar contexts (see below).[288] Among the words affected by this change there are also several with original **ö*, which apparently merged with **e*, in some cases quite early[289], as in **dörben* ‘four’. In Dongxiang this development was carried through quite consistently, so that the few words that escaped it, such as **tere* ‘that’, **edee* ‘now’, really stand out.[290]

In Kangjia there are only some isolated cases in which the dental plosive has become a palatal fricative, e.g. *čilɔ* < **tülien* ‘firewood’, *čimɔ* < **temür* ‘iron’. Some irregular cases are shared by several Baoanic dialects. CM **gedesün* ‘intestines’ was apparently palatalised into a form **geǰesün* at an early stage, so that Dongxiang displays a retroflex affricate in this word rather than the alveolopalatal affricate. Similarly **teǰie-* ‘to feed’ has developed in Baoan and Kangjia as if it were **čeǰie-*.[291]

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[288] Unlike the palatalisation of **s* > *ś*, Mangghuer does not share the palatalisation of the dental stops with Dongxiang.

[289] That this unrounding took place early at least in some words is suggested by its occurrence in other Shirongol languages, as in **dörben*, but in case of **sölsün* ‘gall bladder’ it is only found in Baoanic, cf. also **seül* ‘tail’.

[290] The palatalisation is reminiscent of the change *di*/*ti* > *ǰi*/*či* that took place in prehistoric Mongolic. However these ‘early secondary’ *ǰ* and *č*, like primary **ǰ* and **č*, have shifted in Dongxiang to a retroflex articulation, so that the old and new palatals did not merge.

[291] A relationship with Ordos *čide-* ‘id’ seems less likely.

4.3.3. Strength/aspiration shifts

Initial **d-* may be strengthened to *t-* when the next syllable starts with a strong consonant. This development is most consistent in Mongghul in words such as *taġur* < **dabkur* 'layer', *təbde:-* < **debte-* 'to soak', *təʒ́in* < **döčin* 'forty', *təda-* < **duta-* 'to lack'. Also typical for Mongghul is the subsequent weakening of the medial strong consonant. In the other languages it can be found occasionally, as in MgrM *təda-* (~ *cïda-*) < **dutaa-* 'to flee', Dgx *tudoro* (~ *sudoro*) < **dotara* 'inside'. The alternants in brackets are indicative of the shared aversion of the QG languages for certain homorganic consonant sequences (see below).

Outside Mongghul there are also cases in which original initial **t-* is weakened (dissimilated) when a strong consonant follows, as in BaoÑ *dəbći* < **tobčï* 'button', BaoÑ *debśaŋ*, Kgj *dešɔ*, EYu *dogšün* < **tübsin* 'level'. EYu *daɣqa* < **takïa* 'chicken', EYu *dakə-* < **takï-* 'to sacrifice', Dgx *tosuŋ* ~ *dosuŋ* < **tosun* 'fat'.

Medially there is a tendency to weaken **t* to *-d-*. This, too, occurs most systematically in Mongghul, at least when the initial consonant is strong, secondarily strengthened, or a consonant without strong counterpart so that it cannot be strengthened. In Mangghuer, Baoan, Kangjia, and Dongxiang, *-d-* and *-t-* are mostly distinguished as in CM. In Eastern Yugur the descriptions disagree: Bolčuluu suggests medial *-t-* generally keeps its strength, whereas according to Junast it is generally weakened to *-d-*.

Non-initial strengthening by following *-s-* may be the reason for alternations *d ~ t* in words such as **gedesün* 'bowels', **gadasun* 'stake', **gudusun* 'boots', **baïdasun* 'mare'[292]. Interestingly the forms with *-t-* are found both in the Northeast (Dagur, Khamnigan, Buriat) and in the West, where the Muqaddimat form *getesün* may represent the first step towards the reduced form **gessün* from which the Kalmuck and Moghol forms derive. In Ganhetan Baoan, Kalmuck-like reductions are developing independently in this set of words.

Unexpected medial strengthening occurs in Shirongol[293] in a number of nouns, of which the following are the most widespread cases:

MgrM	BaoÑ	Kgj	Dgx	CM	
motu	*mətəŋ*	*mʉrtʉn*	*mutuŋ*	**modun*	wood
xotu	*hə:taŋ*	*fʉtɔ ~ hʉtɔ*	*xoduŋ*	**hodun*	star
śiudiar	*si:tər*	*sʉtər*	*śiauʒ́ie*	**seüder*	shadow

Unexpected strengthening also occurs in some verbs in which an originally stem-final *-d* ended up in intervocalic position in Mangghuer, Dongxiang, and often in Baoan.[294]

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[292] However, the *-t-* is also present in Dag *gat* 'stake', Bur *gutal* 'boots' which lack the suffix *-sUn* of the alternative forms Dag *gatəs* and Bur *gutahan*.

[293] Mongghul does not share this feature, but it may have had it earlier and lost it recently due to its tendency to weaken medial consonants.

MgrM	BaoD	Kgj	Dgx	CM	
betu-	*etə-*	*vəide-*	*otu-*	**ebed-*	to be ill
qaputu-	*χitə-*	*χөr- ~ χʉr-*	*qawitu-*	**kabïd-*	to swell

This development in the verbs is also found in Moghol *ebȧt-u-na* 'is ill', *delat-u-na* 'hits', *nɔt-u-na* 'dances' from **ebed-*, **deled-*, **naad-*. There is no obvious trigger for strengthening in these nouns and verbs, and they may be two unrelated phenomena. In the verbs it may have played a role that the verb stems are often followed by suffixes with strong consonants, such as future *-kU*, perfect *-gsAn* (Shirongol *-san*) and habitual *-gčI* (Shirongol *-čin*).[295]

Strengthening of preconsonantal **d* may happen after the cluster is dissolved, as in Dgx *oćiğaŋ* < **ödken* 'thick'.

Words starting with *tVt-* or *dVt-* display special developments in QG languages, e.g. **tata-* 'to pull': EYu *hta-*, MgrH *təda- ~ ćida-*, MgrM *tida- ~ cïda-*, BaoÑ *ƹda- ~ hda-*, Kgj *sta- ~ sda- ~ sïta-*. Dgx *sda-*, *sïda- ~ ćida-*. Words starting with *tVt* (which partly stem from *dVt*) were most consistently adapted by Eastern Yugur, by replacing the first dental by *h* (as in the sequence *kVk-*, see below). While the tendency for the assimilation *dVt* > *tVt* is already evident in MMo[296], this last EYu stage may be a very recent development, as Potanin and Malov still mention forms with both *t*'s intact. Cf. also EYu *hta-* < **duta-* 'to lack', *htɔrɔ* <**dotara* 'inside', *hturğan* < **tuturgan* 'rice', and the development of **dutaa-* 'to flee' in some Shirongol dialects.

Other peculiar developments may occur in words in which *t-* is followed by *-s-*, as in **tasura-* 'to break': MgrM *tasïr- ~ cïʒïr-*, BaoD *ʒarə-*, Kgj *cïra- ~ cra-*, Dgx *cïra- ~ sïra-*. Cf. also **tasma* 'thong', **tüsür-* 'to pour'.

4.3.4. Syllable-final developments

Only few nouns with word-final **-d* happen to survive in the peripheral languages, and none occur in all of them. Examples are **ed* 'goods', **keid* 'temple', **kïtad* 'Chinese', **subud* 'pearl', **töbed* 'Tibetan'. **höd* 'larva' is disyllabic in most languages. As mentioned above, the final **-d* of verbs has mostly become inter-vocalic in Shirongol.

In Dagur, final *-d* has become *-r*, as can be seen in derived forms such as *bɔlɔːr* < **boluad* 'and' (the perfect converb of **bol-*), distributive numerals in *-Ad* such as *xarbaːɣaːr* 'ten each', and the plural suffix *-r*.[297] In verb stems *-d* is retained.

In Eastern Yugur *-d* was preserved as such in both nouns and verbs.

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[294] This development is not found in all verbs of this structure, and not consistently in all dialects. For instance **čad-* 'to be satiated', **od-* 'to go', and**söged-* 'to kneel' lack it.

[295] Alternatively it maybe postulated that these verbs originally had *-t*, and only appear with *-d* due to the general neutralisation of strength in syllable-final plosives.

[296] The occasional development **dVt* > *tVt* can be found both in Sino-Mongolic and Arabo-Mongolic sources, see **dotara* 'inside', **duta-* 'to lack', **dutaa-* 'to flee'.

[297] Phonetically any Dagur plural in *-r* could also reflect the suffix **-s*, but it is found on stems which traditionally take **-d*.

Mongghul has preserved *-d* or developed *-r*, which also occurs in Ñantoq Baoan and Kangjia, cf. MgrH *ćidar* < **kïtad* 'Chinese', Kgj *tər ~ tʉr* < **töbed* 'Tibetan'. MgrM *tiebie* 'Tibetan' lost the *-d* altogether, probably via *-r*.

Dongxiang preserved *-d* by means of an epenthetic vowel in the petrified plural *pəsədu* < **busu.d* 'others'.

As shown above verbs in **-d* often preserved their final consonant in Shirongol by means of an epenthetic vowel. The added vowel tends to be *u*, suggesting that it is the connective vowel inserted between the stem and some suffixes which was reinterpreted as part of the stem.[298] In Baoan and Kangjia some of these verbs have forms or variants with *-r*, especially in inflected forms, see **čad-* 'to be satiated', **naad-* 'to play', **od-* 'to go'.

Preconsonantal *-d-* is treated similarly. It becomes *-r-* in Dagur, remains unaltered in Eastern Yugur[299], and tends to be preserved by means of an epenthetic vowel in Shirongol.[300] This can be illustrated by means of **ödken* 'dense': Dag *urkun*, EYu *hʉtgwen*, *hödgön*, MgrH *ʂdogo:n*, MgrM *ś(i)digen*, BaoD *dəgaŋ*, Kgj *dagɔ ~ ʒïgɔ*, Dgx *oćiğaŋ*. See also **hedke-* 'to cut', **ödme* 'bread'.

4.4. Development of CM **ǰ* and **č*

4.4.1. Default (non-shift)

Both **ǰ* and **č* are limited to syllable-initial positions. The original syllable-final affricates probably developed into **s/š*, which are dealt with below.

Weak **ǰ* occurs in all syllable-initial positions:
Initial: **ǰau-* 'to bite', **ǰeün* 'needle', **ǰöelen* 'soft', **ǰulǰïga* 'animal young', **ǰürken* 'heart'.
Intervocalic: **gaǰar* 'land', **ǰaǰïl-* 'to chew', **küǰüün* 'neck', **seüǰi* 'hip', **üǰe-* 'to see'.
Postconsonantal: **aralǰï-* 'to exchange', **bïlǰïur* 'small bird', **elǰigen* 'donkey', **könǰilen* 'blanket', **kürǰe(g)* 'spade'.

Strong **č* occurs in all syllable-initial positions:
Initial: **čagaan* 'white', **čïsun* 'blood', **čimegen* 'marrow', **čoara-* 'to be pierced', **čöen* 'few'.
Intervocalic: **hiče-* 'to be ashamed', **kaučïn* 'old', **ničügün* 'naked', **oŋgača* 'trough', **saču-* 'to scatter'.
Postconsonantal: **arčï-* 'to clean', **gagča* 'alone', **kamčun* 'sleeve', **nögči-* 'to pass', **tobčï* 'button'.

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[298] Sometimes another vowel appears instead, as in Dgx *śiaoźie-* < **söged-* 'to kneel'.

[299] In Bolčuluu's notation preconsonantal **d* may take over the strength of the following **k*.

[300] In some words Baoan and Kangjia used metathesis, apparently to attain a more tolerable structure, as in BaoX *čigtar* < **čidkör* 'demon', BaoÑ *səgte-*, Kgj *sïχte-* < **sedki-* 'to think'.

4.4.2. Shifts in the place of articulation

Compared to the three literary central Mongolic languages, the first striking thing in the peripheral languages is that the **ǰ* and **č* did not split into palatal *ǰ* and *č* and depalatalised apical affricates *ʒ* and *c*. However, under the influence of Chinese and/or Tibetan, many QG languages have by now developed two or three sets of affricates. Modern *ʒ* and *c* as they appear in QG are unrelated to the same sounds in Khalkha, but are normally associated with **s* and will be dealt with below. Apart from *ʒ* and *c* most languages have a retroflex set *ʐ* and *ç* and an alveopalatal set *ʑ* and *ć*. Note also the parallel development (split) of **š-*.

The degree and manner of incorporation of the foreign pronunciations differs from language to language, showing that they were adopted relatively recently. In Mongghul **ǰ* and **č* were generally shifted towards *ʑ* and *ć*, with only a couple of exceptions. In Baoan *ʑ* and *ć* are also the normal reflex of **ǰ* and **č.* In Dongxiang the retroflexes *ʐ* and *ç* are the default reflexes of **ǰ* and **č,* whereas Dongxiang *ʑ* and *ć* are the result of modern palatalisations of **d* and **t* (see above). The situation in Mangghuer is less orderly; both the retroflexes and the alveopalatals are used in native words with **ǰ* and **č.* The alveopalatals are less frequent, and seem to be favoured preceding the vowel *i*, as in *ći* < **čï* 'you', *ćiʑiġ* < **čečeg* 'flower', but not obligatory, cf. *ʐï-* < **ǰii-* 'to stretch'.

Eastern Yugur and Kangjia have a single set *ǰ* and *č* in native words.[301]

Mongghul *ć* can also go back to **k* followed by **i/*ï*. Mangghuer *ć* and *ç* both can also stem from **k* before **i/*ï* (see below).

4.4.3. Strength/aspiration shifts

Initial strengthening occurs systematically in Mongghul, as in *ćüġa-* < **ǰabka-* 'to lose', *ćabsar* < **ǰabsar* 'interval', *ćugu-* < **ǰokï-* 'to fit'. Examples in other QG languages include MgrM *çućiŋ* < **ǰočïn* 'guest', and EYu *čəsa-* < **ǰasa-* 'to make', *čüsə-* < **ǰisü-* 'to cut'. Accompanying (that is, subsequent) medial weakening is only systematic in Mongghul.

In most QG languages there are also some unexpected developments in the opposite direction, i.e. Ordos-type weakening of initial **č-* due to (or in spite of) a following strong consonant, as in EYu *ǰabčə-*, BaoÑ *ʑabći-* < **čabčï-* 'to chop', EYu *ǰagčaqai* < **čarčaakaï* 'grasshopper', EYu *ǰasən ~ časən*, Dgx *ʐasuŋ ~ çasuŋ* < **časun* 'snow'.

4.4.4. **y-* instead of **ǰ-*

Mongolic words with initial **ǰ-* often correspond to **y-* in Turkic cognates. Words that should have had an initial affricate but instead appear with *y-* in Shirongol languages may be explained either as relatively recent Turkic borrowings, or as

[301] The few alveolopalatals in native words such as EYu *ʑa:n* < **ǰayaan* 'fate' are marginal and not due to Chinese influence. In this case the *ʑ-* seems to be due to the collapse of the unaccented first syllable, so that the *-y-* palatalised the **ǰ-*.

archaisms. Words with *y-* in one or more Shirongol languages, like **ǰančï-* 'to pound' and **ǰarïm* 'half' could belong to either category. However, some of the affected words lack an ancient Turkic cognate, e.g. **ǰabka-* 'to get lost', **ǰasa-* 'to make'. These cases of *y-* may be archaisms. If so, they might stem from prehistoric times, as these words are documented with **ǰ-* in Middle Mongol.

4.4.5. Deaffrication of **č*

In a number of words, **č* has become *š* in Dagur, without an obvious reason. However, for some of the affected lexemes a Manchu equivalent with *š-* exists, giving rise to the usual question whether Dagur owes this feature to Manchu or vice versa. Examples: *šanə-* < **čïna-* 'to cook', *šad-* < **čïna-* 'can', *šar* < **čïraï* 'face', *ši:* < **čï* 'you', *šiməɣ* < **čimegen* 'marrow', *šil-* < **čile-* 'to feel numb', *nurš-* < **nögči-* 'to pass', *šidər* < **čidör* 'hobble', *šurkul* < **čidkör* 'demon'.

In QG deaffrication may occur in secondarily preconsonantal **č*, as in EYu *šda-* < **čïda-* 'to be able'[302], BaoÑ *niṣġaŋ* < **ničügün* 'naked'.

4.5. Development of CM **g* and **k*

4.5.1. Default (non-shift)

Weak **g* occurs in all positions:
Initial: **gaǰar* 'land', **ger* 'house', **gurban* 'three', **gurïl* 'flour', **güi-* 'to run'.
Intervocalic: **elǰigen* 'donkey', **heligen* 'liver', **kituga* 'knife', **ničügün* 'naked', **nogaan* 'green'.
Postconsonantal: **ïlga-* 'to choose', **köŋgen* 'light', **margasï* 'tomorrow', **nimgen* 'thin', **ǰïrguan* 'six'.
Final: **čag* 'time', **čug* 'bundle',**kereg* 'matter', **kulag-* 'to steal', **ög-* 'to give'.
Preconsonantal: **bagta-* 'to fit into', **nogta* 'halter', **nögči-* 'to pass', **sogta-* 'to be drunk', **ügtee-* 'to pull out'.

Strong **k* occurs in all syllable-initial positions:
Initial: **kaïčï* 'scissors', **ken* 'who', **ködel-* 'to move', **kudku-* 'to stir',**küǰüün* 'neck'.
Intervocalic: **eke* 'mother', **hokar* 'short', **nöker* 'friend', **sakï-* 'to wait', **ükü-* 'to die'.
Postconsonantal: **aska-* 'to sprinkle', **dabkur* 'layer', **alku-* 'to step', **hedke-* 'to cut', **öskel-* 'to kick'.

The CM guttural stops underwent a split into velar pronunciations **g *k* and uvular pronunciations **ġ *q* depending on the vocalic environment. The consequences of this split, which already took place prehistorically, are still present in all QG languages. The velars and uvulars have phonemic status in Shirongol and in Eastern

[302] In this auxiliary verb even Moghol shows deaffrication.

Yugur.[303] Apart from the limited development **ki* > *ći* in the Monguor languages, most later changes involve fricativisation or changes in consonant strength, and related devoicing phenomena.

Default development of initial **g* and **k*:

	**g(a)*	**g(e)*	**g(ï)*	**g(i)*	**k(a)*	**k(e)*	**k(ï)*	**k(i)*
Dag	*g*	*g*	*g*	*g*	*k/x*	*k/x*	*k/x*	*k/x*
EYu	*ġ*	*g*	*ġ*	*g*	*q/x*	*k*	*q/x*	*k*
MgrH	*ġ*	*g*	*?*	*?*	*x*	*k*	*ć*	*ć*
MgrM	*ġ*	*g*	*?*	*?*	*q*	*k*	*ć*	*ć*
BaoD	*ġ*	*g*	*?*	*?*	*x*	*k*	*x*	*k*
BaoÑ	*ġ*	*g*	*?*	*?*	*x*	*k*	*x*	*k*
Kgj	*ġ*	*g*	*?*	*?*	*x*	*k*	*x*	*k*
Dgx	*ġ*	*g*	*?*	*?*	*q*	*k*	*q*	*k*

As in Kalmuck and Ordos, uvular *q-* has become a fricative in several peripheral languages, while velar *k-* remained a plosive. In Eastern Yugur *x-* tends to appear when a voiced consonant (or no consonant) follows, and *q-* elsewhere. In Dagur, both **k* and **q* may result in either *k-* or *x-*, without a predictable system, but also apparently without free variation.[304]

Uvular *q-* has become *x-* in Mongghul, Baoan, and Kangjia, unless *q-* was weakened before that could happen. *q-* was retained in Dongxiang. *q-* is also found in Mangghuer, but the fact that some words with initial **h-* now have *q-* in Mangghuer suggests that modern *q-* goes back to an earlier stage *x-*.[305]

In Mongghul and Mangghuer both **ka-* and **ha-* resulted in *xa-*. However, only the *x-* that stems from **h-* further developed into Mongghul *f-* when followed by rounded vowels. This indicates that the fricativisation of uvular **q-* took place after the development **h-* > *x-* (> *f-*) had mostly been completed. The development of **k-* > **x-* > *f-* is only rarely seen, as in *faġ* ~ *xɔġ* 'fertilizer' < **kog* (cf. MgrM *qo*).[306]

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[303] In Eastern Yugur the phoneme status in native words is somewhat weaker when Bolčuluu's analysis is followed, as he distinguishes a greater variety of vowels. In Junast's materials *o* and *u* also partly merged with their harmonic counterparts. Svantesson et al. (2005:151) chose to subsume *q* under /k^h/ and both *ġ* and *ǧ* under /k/.

[304] This can perhaps be ascribed largely to the Dagurs' history as multilinguals in several languages that have a large part of their vocabulary in common. This has also led to etymological doublets such as *xar* 'black (general term)' and *kara:* 'black (of a horse's coat)'.

[305] Examples include *qaġər* < **xarġar* < **hargal* 'dried dung', *qarġa* < **xarġa* < **halagan* 'palm of the hand', *qʊġʊar* < **x(ʊ)ġʊar* < **hokar* 'short'. This at least demonstrates that there has been a period of confusion. However, most **h-*words retain *x-* rather than *q-* in modern Mangghuer.

[306] Another example is BaoÑ *fulə* 'bottle' from Chinese *húlu* 'gourd'. Cf. also the secondary *f-* in Mongghul *furɔŋ.la-* 'to protect' < Amdo **hroŋ-*, cf. lit. Tib. *sruŋ-*.

4.5.2. Shifts in the place of articulation

A typical feature of the Monguor languages is the development of CM **ki*/**kï* > *ći* in words such as MgrH *ćimuʒə*, MgrM *ćimpəʒï* < **kïmusun* 'nail'[307]; cf. also **kïlbar* 'easy',**kïrga-* 'to shave', **kïrgaul* 'pheasant', **kïtad* 'Chinese', **kïtuga* 'knife', **kïursun* 'nit'; **kirbe* 'edge', **kiröe* 'saw'. However, this shift did not occur in all words where it was expected. It did not affect **ki-* 'to do', **kïǰaar* 'edge', **kïsu-* 'to scrape'. And although there are cases such as MgrH *ćiźirma:* < **čakïrma* 'iris', *fuźün* < **ökin* (~ **okïn*) 'girl', there are few non-initial examples.[308] In many words **k* has resulted in weak *-g-* which did not become palatalized, including the following: **auškï* 'lungs', **čakïur* 'lightning', **čïkï-* 'to stuff', **čïkïn* 'ear', **čokï-* 'to peck', **daakï* 'lumpy hair', **ǰokï-* 'to suit', **sakï-* 'to wait', **muškï-* 'to twist'; **geški-* 'to trample', **hekin* 'brain', **sedkil* 'mind', **tülki-* 'to push'.

One would expect a parallellism between the weak and strong counterparts, but it is not entirely clear whether **gi*/*gï* also became *źi-*. Some of the alleged examples are not very convincing, as they are of an onomatopoeic nature. MgrH *źilo:n* 'shiny' does not count as evidence for the Mongghul development, as it derives from a root that shows an alternation **g-* ~ **ǰ-* throughout Mongolic. Non-initial *g* was often preserved, as in *ġurgi* < **gorgï* 'hook', *źaŋgədə-* < **ǰaŋgïd-* 'to tie a knot', *suŋgunɔġ* < **soŋgïna* 'onion'. If the sequence **gi*/*gï-* did not, or not generally, become *źi-*, we can assume in the abovementioned cases that *k* had been weakened to *g* before it could become *ć-*. This suggests that the development **ki*/*kï-* > *ći-* may be quite late, at least after the weakening of medial *-k-* in these words. Mangghuer does not have the same strong tendency to weaken the strong stops in medial position, but lacks the development *k* > *ć* in intervocalic position as well. The initial consonant of **ki-* 'to do', **kïǰaar* 'edge' was also weakened, which may be the reason why it escaped palatalisation.

In the other Shirongol languages there are some isolated cases of palatalisation of **k*. In Dongxiang the only examples in Mongolic words are *ćirəu* < **kiröe* 'saw', *daći* < **daakï* 'matted wool', and *oćin* < **ökin* 'girl'.[309] The latter also has forms with palatal affricates in some Baoan dialects. Another example is BaoGt *ṙàći* < **arakï* 'liquor'. Unless interdialectal borrowing is assumed, these exceptions cannot be explained.

The Baoanic languages as well as Eastern Yugur tend to have an uvular consonant in words that had **kï*, and a velar consonant in those that had **ki*, but the difference between the vowels themselves has disappeared, and today they are both generally represented by *ə*. Only in Dongxiang the pronunciation *ï* can be seen after

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[307] In Mangghuer the alveopalatal *ć-* may further develop into retroflex *ç-*. This development seems to be due to a change in the following vowel, cf. *çaibai* < **kirbei* 'side', *çubar* < **kïlbar* 'easy', as opposed to *ćidoġo* < **kïtuga* 'knife', *ćirɔu* < **kiröe* 'saw'.

[308] The following correspondences are less certain as they seem to be of onomatopoeic origin: Mongghul *puźira:-*, possibly < **burkïra-* 'to belch forth (water, steam, smoke)', *xaźira:-*, possibly < **kakïra-* 'to expectorate', *xoźira:-*, possibly < **korkïra-* 'to snore, grunt'.

[309] Cf. also Dgx *ćita* 'religious tractate' < Arabic *kitāb* 'book', Kgj *paći duğu* 'razor' < Persian *pākī* 'razor' + Mongolic **kïtuga* 'knife'.

ġ and *q*.[310] This is another illustration of the varying quality of **ï* through different periods and areas. In Proto Monguoric it probably merged with **i*, or at least it was itself palatal enough to trigger the development *k* > *ć*. It can not be established whether **ï* had merged with **i* in Proto Baoanic and 'Proto Yugur', or whether it had developed a uvular *ï*-like pronunciation. Dongxiang may have developed its *ï* relatively recently.

Minor articulation shifts can be seen in Kangjia, Dongxiang, and Eastern Yugur. In Kangjia many words have velars in historically back-vocalic stems, e.g. *guru* < **kuruun* 'finger', *gimesʉn* < **kïmusun* 'nail'. The opposite can occasionally be found in Dongxiang, e.g. *quǧoŋ* < **küregen* 'son-in-law', *qïʂïǧəu* < **geškiür* 'stairs', and Mangghuer, e.g. *qur* < **köl* 'foot'. According to Bolčuluu, the expected uvular *ġ* is automatically replaced by velar *g* in Eastern Yugur when it precedes *s, č, t, l*, as in *agsə-* (< **aġsə-*) < **agsu-* 'to borrow', *ġagča* (< **ġaġča*) < **gagča* 'alone', *agta* (< **aġta*) < **agta* 'stallion', *bagla-* (< **baġla-*) < **bagla-* 'to bind'.

4.5.3. Strength/aspiration shifts

There are several phenomena related to weakening and strengthening in Eastern Yugur and Shirongol. Many dialects have instances of Mongghul-type initial strengthening of **g-* as well as Ordos-type initial weakening of **k-*. Not all of these developments are predictable, and there are many cases of disagreement even between closely related dialects.

Initial strengthening is most common in Mongghul, as in MgrH *xoźin* < **gučïn* 'thirty', *keʂï* < **gesiün* 'branch', but can also be found in the other QG languages in words such as Dgx *qïǧəi* < **gakaï* 'pig', EYu *qagča* < **gagča* 'alone', BaoD *χuśüŋ* < **gasïun* 'bitter'. Instead of the default *ġ-*, strong *q-* or *x-* will appear in back-vocalic stems, depending on the language. In front-vocalic stems, *k-* will appear instead of default *g-*. An interesting case of initial strengthening is MgrH *kudu*, BaoD *kətə* < **gertü* 'at home', which is originally just the dative-locative of **ger* 'house'.

Initial weakening under the influence of a medial weak consonant is shared by Eastern Yugur and Shirongol in a considerable number of words. Most of these have a second syllable starting with **d* or **ǰ*, such as **kada-* 'to nail', **kadaar* 'bit', **kadu-* 'to harvest', **kaǰa-* 'to bite', **ködel-* 'to move', **köndelen* 'horizontal', **könǰile* 'blanket', **kurdun* 'quick', **kürǰe(g)* 'spade', **küǰüün* 'neck'. Other words feature weakening in the same set of languages, but for unknown reasons, e.g. **kee-* 'to say', **ki-* 'to do', **koar* 'two'.[311] In both of these sets the weakening must have taken place early, as they are also found in Mongghul, where the original structure

[310] Some analyses of Dongxiang distinguish separate vowel phonemes *ï* and *i*. When a phoneme *ï* is recognized, this has consequences for the phoneme status of *q* and *ġ*, as well as the sibilants.

[311] There are some possible arguments. **kee-* 'to say' is usually found at the end of quoted statements, cf. the irregular voicing in Turkic of *te:-* 'to say' which has the same functions. **ki-* 'to do' is often used as an (unstressed) verbalizer. **koar* 'two' may have been influenced by **gurban* 'three'; **korïn* 'twenty' does not have initial weakening.

of these words (strong initial, weak consonant starting the second syllable) is considered ideal.

In Baoanic, initial weakening is even more frequent, and usually occurs in words in which **k* is followed by a weak consonant: **kïmusun* 'nail', **kuï* 'sheath', **kuruun* 'finger'. The initial weakening in Kgj *ğurğai* < **korakaï* 'insect', *ġulğai* < **kulagaï* 'thief', *ğurğun* < **kurïgan* 'lamb' stems from the fact that the intermediate forms **korgaï*, **kulgaï*, **kurgan* had lost their middle vowel, so that the medial *-g-* came into a position from which it could weaken the initial.

However, many other words without strong consonants have retained their initial **k* in Eastern Yugur and all of Shirongol, including **kabar* 'nose', **kalaun* 'hot', **kanïa-* 'to cough', **kara* 'black', **kelen* 'tongue', **ken* 'who', **küün* 'person'. Although there is no obvious explanation for the different development of these groups, the fact that the same words behave similarly in several languages shows the 'choice' of initial may have a certain antiquity.

Baoanic further developed strong initials in **gal* 'fire', **gar* 'hand', and **gar-* 'to exit' (cf. Kgj *χar*, *χar*, *χar-* as opposed to EYu *ġal*, *ġar*, *ġar-*). The reason for this is unknown.[312]

Eastern Yugur has both initial strengthening and the reverse, Ordos-type dissimilatory weakening preceding a strong consonant, as in *ġatu:* < **katau* 'hard', *gebte-* < **kebte-* 'to lie down', *göbčə* < **köbči* 'bowstring'. The same development can occasionally be seen elsewhere, as in BaoÑ *ġəśəŋ* < **kosïun* 'beak'. This type of weakening did not take place in words with a double or complex vowel such as **kaučïn* 'old', **koasun* 'dry', **köisün* 'navel', **köiten* 'cold', probably because dissimilation is less urgent given the greater distance between the two strong consonants. Svantesson et al. (2005:206) made the same observation for weakening in Chakhar.

As in the case of **tVt*, the homorganic consonant sequence **kVk* receives a special treatment in Eastern Yugur. It is dissimilated, resulting in forms like *hkö* < **köke* 'blue', *hkü:r* < **köküür* 'snuffbottle', *hġa-* < **kaka-* 'to choke'.

Preaspiration of intervocalic *k* (and *q*), alternating with, instead of, or in addition to postaspiration, is common in Eastern Yugur, with some erratic parallels in the Baoanic languages.

EYu	BaoÑ	Kgj	Dgx	CM	
dayqa	*təχa*	*taχa/tïχa/tχa*	*tïġa, tïxġa*	**takïa*	chicken
nökör	*nəkər, nəχgər*	*nəχgʉ*	*nokie*	**nöker*	friend
nökön, nö^{h}gö	*nəkuŋ*	*nʉχgʉ(ŋ)*	*nokieŋ*	**nüken*	hole
hgor	*əkər ~ əχgər*	*gər*	*fugie*	**hüker*	bovine
qayqai	*ġaġəi*	*ġəğai ~ ġağai*	*qïġəi, qïxġəi*	**gakaï*	pig
nɔyqɔi	*noġəi, nəχəi*	*nuğuai*	*noğəi*	**nokaï*	dog
hkon	*əkuŋ*	*iχgɔ*	*oćin*	**ökin*	girl

[312] In the case of **gar-* it could be argued that the strengthening is due to the many verbal flection suffixes starting with a strong consonant. Cf. the development of **ög-* 'to give' and **ab-* 'to take' in Mangghuer. However, this does not account for **gar* and **gal*.

Many of the same words also have preaspirated *-k-* or *-q-* in Western Yugur[313], both in native words e.g. *ta^{h}ġağï* < CT **takagu* 'chicken' (cognate to CM **takïa*), and in borrowings, e.g. *nö^{h}ger* 'friend' from Mongolic. In Eastern Yugur a much larger set of words is recorded with preaspirated *k/q*. It is noteworthy that many cases thus recorded by Junast are listed by Bolčuluu with (post)aspirated *k/q* instead, as in (Junast) *χoroˠġui* ~ (Bolčuluu) *χɔrɔqɔi* < **korakaï* 'insect'. See also **čarčaakaï* 'grasshopper', **mïkan* 'meat', **mukur* 'blunt',**saïkan* 'beautiful', **tüükü* 'raw'.[314] In fact both authors may have heard pre- and postaspirated sequences [$^{h}k^{h}$] and [$^{h}q^{h}$]; at any rate the exact realisation has little relevance for the diachronic considerations.

The absence of (recorded) preaspiration in intervocalic *-t-* or *-č-*, both in Eastern Yugur and in Shirongol, may have to do with the fact that aspiration is most clearly heard near the velars and uvulars.

As can be seen in some of the examples above, the Shirongol languages often weaken intervocalic **k/q* to *g* and *ġ*. Uvular *-q-* may become a fricative *ğ*. Medial weakening is not universal, and the exceptions are often inexplicable.

In Mongghul **-k-* at the beginning of the second syllable was weakened in words with a strong initial consonant, thus creating the pattern preferred by Mongghul. The initial consonant in such words may be primarily strong, as in *kugo* < **köke* 'blue', or the strength of the **-k-* could be transferred to the initial consonant, as in *ćugu-* < **ǰokï-* 'to suit'. If the initial consonant is not strong or strengthenable, the **-k-* has remained strong, as in *maxa* < **mïkan* 'meat', *nokor* < **nöker* 'friend', *noxuai* < **nokaï* 'dog'. Weakening also occurs when the first vowel is lost, thus moving intervocalic *-k-* into a postconsonantal position, as in *sgə-* < **sakï-* 'to wait'.

Baoan tends to neutralise the distinction between *-g-* and *-k-* in medial positions, at least in words that lack other strong consonants, cf. BaoGt *moġui* < **mogaï* 'snake', *noġui* < **nokaï* 'dog'. However, the preservation of strong *-k-*, and the strengthening of *-g-*, seem to be enabled by certain environments, notably strong consonants earlier in the word, as in BaoD *tχa* < **takïa* 'chicken', BaoÑ *sɵχɵr* < **sokar* 'blind', BaoD *tχuŋ* < **togaan* 'pot', BaoÑ *xuke* < **sibüge* 'awl', BaoÑ *ćiχaŋ* < **čagaan* 'white'. Other cases of strengthening are due to a strong consonant colliding with the **g* after the loss of a vowel, as in *maχśiə* < **margasï* 'tomorrow'.

In Kangjia we see the same neutralisation as in Baoan, at least in originally back-vocalic stems, cf. *muğuai* < **mogaï* 'snake', *nuğuai* < **nokaï* 'dog', *tuğu* < **tugul* 'calf', *tuğu-* < **toku-* 'to saddle'. In front-vocalic stems Kangjia tends to preserve some medial **k*'s that were lost in its relatives, e.g. *кцкц* as opposed to BaoÑ *kugɵ*, Dgx *kugie* < **köke* 'blue'.

Medial strengthening occasionally occurs in the Monguor languages as well, as in MgrH *ŋkərʑaġ* < **ïŋgarčag* 'packsaddle', MgrM *ɔŋkuʑo* < **oŋgača* 'trough', in which the strength was apparently transferred from the initial consonant of the third syllable. There are some similar cases in Kangjia, e.g. *əkəči* < **egeči* 'elder sister'.

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[313] In Western Yugur the phenomenon is not restricted to the gutturals (see Roos 2000:32). The same applies to Salar, where similar phenomena exist (see Dwyer 2007:188).

[314] -^{h}k- is also attested in the ultimately foreign words **arakï* 'liquor' and **tamakï* 'tobacco'.

Two odd cases of strengthening of preconsonantal **g* by a following consonant can be found in EYu *qutul-* < **hogtal-* 'to fell' and *kɯte-* < **ügtee-* 'to pull out' (comparable to *pəǰü:n* < **ebčeün* 'chest' above).

Unexplained cases of medial strengthening in Shirongol include MgrH *da:xa*, BaoD *daχaŋ* < **daagan* 'foal', MgrM *turxa*, BaoGt *talxa* < **tulga* 'pillar', Dgx *niŋkien* < **nimgen* 'flimsy'.

Although Mongghul, Mangghuer, and the Baoan dialects feature similar developments with regard to consonant strength, individual words often develop differently because the precise rules are not identical. In Baoan an initial strong consonant is likely to keep an intervocalic **-k-* strong, and is even able to strengthen intervocalic **-g-*, but in Mongghul the same circumstances automatically lead to weakening of the **-k-*. More research is required in order to establish the rules in more detail.

In Dongxiang, due to the above and other developments, the reflexes of medial **k* and **g* are quite unpredictable. Both may appear as a plosive or fricative, or disappear altogether. The Dongxiang uvular fricative also occurs in historically front-vocalic words. The variety of reflexes can be illustrated by means of the following words:

CM	Dongxiang	Example
velar **k-*	*ğ*	*həbəği* < **herbekei* 'butterfly'
	g	*sugie* < **süke* 'axe'
	k	*ekie* < **eke* 'mother'
	w ~ *Ø*	*iʑieku* ~ *iʑiewu* ~ *iʑiau* < **idekü* 'food'[315]
	ć	*oćin* < **ökin* 'girl'
velar **g-*	*ğ*	*çuməğə* < **čimegen* 'marrow'
	g	*ʂəŋgien* ~ *śiŋkien* < **siŋgen* 'thin'
	k	*niŋkien* < **nimgen* 'flimsy'.
	w ~ *Ø*	*ui* < **ügei* 'not there'; *oćiau* < **ötegü* 'old man'
velar **k-* or **g-*	*Ø*	*nie* < **niken* or **nigen* 'one'
uvular **q*	*ğ*	*miğa* < **mïkan* 'meat'
	ġ	*çiğəŋ* < **čïkïn* 'ear'
	q	*oqo* < **hokar* 'short'
	Ø	*baər* 'money' < Turkic **bakïr* (**baqïr*) 'copper'
uvular **ġ*	*ğ*	*iğa* < **ayaga* 'bowl'
	ġ	*çiğaŋ* < **čagaan* 'white'

[315] Probably as a consequence of the development of **-kU*, originally the future participle, the suffix **-kUlAŋ* also lost its *k*, even after a consonant, e.g. Dgx *çudulaŋ* as opposed to CM **čadkulaŋ* 'satiated'.

It is typical for the Shirongol languages that the phonetic developments cannot be reduced to straightforward rules, although the words as such are transparently related to their cognates elsewhere in Mongolic. It tends to make them unsuitable for the reconstruction of certain features. Correctly distinguishing CM **g* and **k* in medial positions is difficult, as Middle Mongol and Written Mongol are of little help, especially in front-vocalic words. The situation in Dagur is also confusing. Apart from numerous words in which intervocalic[316] Dagur *-k-* and *-ɣ-* do go back to **k* and **g*, respectively, there are also several types of unexpected development.

Firstly, intervocalic **k* and **g* have partly become indistinguishable because they often merged in *ɣ*, as in *mɔɣ*^{w} < **mogaï* 'snake', *nɔɣ*^{w} < **nokaï* 'dog', or *bɔɣ*^{w} < **bugu* 'deer', *baɣ* < **buka* 'bull'. The phonetic environment seems to offer no clues as to why **k* was retained or not. As can be seen in the selection of examples shown below, a preceding strong consonant may have played a role in preserving *-k-* in some words. This perceived pattern may be misleading as both reflexes are aparently allowed to occur after initial **b-*[317]. As in the unpredictable treatment of initial **k-*, borrowings from central Mongolic and neighbouring Tungusic may have obscured the genuine Dagur development.

CM *-k- > Dag -k-	CM *-k- > Dag -ɣ-
xukur < **hüker* 'bovine'	*nuɣur* < **nöker* 'friend'
x^{w}*akər* < **hokar* 'short'	*sɔɣur* < **sokar* 'blind'
xək^{y} < **hekin* 'head'	*uɣin ~ uyin* < **ökin* 'girl'
wakən < **ukana* 'billy-goat'	*əɣ* < **eke* 'mother'
čɔk^{y}*-* < **čokï-* 'to peck'	*ǰuɣ*^{y}*-* < **ǰokï-* 'to be suitable'
kuk^{w} < **köke* 'blue'	*suɣ*^{w} < **süke* 'axe'
buk^{w} < **böken* 'hump'	*nuɣ*^{w} < **nüken* 'hole'
nək < **niken* 'one'	*bəɣ* < **beke* 'ink'
čik^{y} < **čïkïn* 'ear'	*m*^{y}*aɣ* < **mïkan* 'meat'

The second problem with **k* and **g* in Dagur is that **g* has occasionally become *k*, leading to historically confusing forms. CM **k* and **g* seem to have changed places in *uɣ*^{w}*-* ~ *u:-* < **ükü-* 'to die'[318] as opposed to *uk*^{w}*-* < **ög-* 'to give'. Cf. also *tɔkul*^{y} < **tugul* 'calf', but *tɔɣ*^{w}*-* < **toka-* 'to saddle'[319]. The reason for this is unknown.

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316 Postconsonantal **k* did not become *-ɣ-* in Dagur.

317 Moreover, systematic changes due to strength patterns have not been described for Dagur so far. There are only incidental cases of distant assimilation such as *kətəs* < **gedesün* 'intestines', in which the **g* was apparently strengthened by the following *-t-*, which was itself due to the *-s-*.

318 The variant *u:-* 'to die' is less problematic, once the form *uɣ*^{w}*-* had arisen, as *u*/*w* is another common Dagur reflex of intervocalic **g*, as in *ǰaus* < **ǰagasun* 'fish', *tuwa:* < **togaan* 'pot', *xaulɔ:-* ~ *xaɣlɔ:-* < **kagal-* 'to break'. This will not be discussed here further, as it does not affect reconstruction. It may prove of interest for the investigation of the Mongolic words in Manchu, as this is one of the similarities between Dagur and Manchu forms, as in Manchu *suwa*, Dag *suwa:* < **sogaa* 'doe'. Such similarities suggest

As is clear from the above, irregular developments, even those that are unexplained, may be of some antiquity, and useful for classification, as in the forms **ǰaga* 'collar' and **ǰürge(n)* 'heart' (instead of **ǰaka*, **ǰürüken*) shared by all QG languages, **ǰalkï-* 'to swallow' (instead of **ǰalgï-*) shared by many QG languages, **kal* 'fire' (instead of **gal*) shared by Baoanic, **hamtu* 'together' (< **kamtu*) in Baoanic; and **köŋken* 'light' (< **köŋgen*) shared by Baoan dialects.

4.5.4. Relics from lost intervocalic consonants

The prehistoric intervocalic consonant of diverse origins, usually reconstructed *-g/ɣ-* by Poppe, but *-x-* by Janhunen, *-h-* by Svantesson et al., and as *-Ø-* here, seems to survive sporadically into the modern languages.[320] Unlike in Middle Mongol[321] and the central standard languages, influence from the spelling in Uygur script is not an obvious explanation in the QG area. These survivals may therefore be real 'atavisms', harking back to a language stage preceding CM as it is otherwise known.

In **suu* (*?*sugu*) 'armpit' there is an unexpected *-g-* in Baoanic, as in BaoD *soġo*, and Dgx *suğə ~ suŋġo*. These forms are reminiscent of Khalkha *suga*, but unlike in Khalkha, influence from the Written Mongol spelling *suɣu* is rather improbable in the QG area. Dongxiang has some further cases, not all equally convincing: *ağui* corresponds to **auï* 'wide', *ʂïğara* corresponds to **sïïra* 'leg' as reconstructed on the basis of other languages, *çiġara* 'tight; busy' could be related to **čïïrag* 'strong', *buğuŋ* 'wheat stack' may be related to **böem*. *ağui* has an equivalent in Moghol. Some superficially similar cases are easily explained as (re)borrowings from the Turkic cognates, e.g. Dgx *ağəŋ*, BaoÑ *aġal* 'village' are from Turkic **a:gïl* rather than an archaic form of the Mongolic cognate **aïl*, and likewise BaoÑ *bəġdi* 'wheat' is from Turkic **bugday* rather than from Mongolic **buudaï*. Outside Baoanic we find EYu *ǰö:ɣəle-* 'to talk in one's sleep', related to **ǰeüle-* 'to dream'.[322]

Some non-Mongolic languages famously preserve relics of intervocalic consonants. Words with such elements occur in the Turkic languages Kök Munčaq (Tuva)[323] and Western Yugur, and in the Tungusic languages Solon and Oročen.[324]

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either that Dagur reborrowed this Mongolic word from Manchu, or that Manchu adopted this word from Dagur.

319 The verb *tɔɣ^{w}-* is in its turn contradicted by the noun *tɔk^{w}* 'saddlepad'.

320 For a discussion see also Janhunen 1999, Svantesson et al. 2005:121-124.

321 Forms like Muq *uɣraq* (**uurag*) 'biestings', RH *niɣur* (**nïur*) 'face' are probably best considered literary forms rather than PM relics.

322 The Eastern Yugur form closely resembles the equally inexplicable modern Uygur *ǰögilä-*.

323 According to Čoyǰungǰab 1985. The *-ħ-* is absent in other descriptions. Unexpected *-g-* in other varieties of Tuva can usually be attributed to Written Mongol influence.

324 Manchu also features intervocalic gutturals in Mongolic words which are written in Written Mongol but not pronounced in the Mongolic languages, e.g. Manchu *gurehe* 'broad tendons on the neck of cattle' corresponding to CM **güreen*.

Kök Munčaq (Tuva)	Oirat	CM	
aljïħï:r	*alčʊ:r*	**alčïur* < **arčïur*	towel
χəħɔ:ra-	*χʊ:r-*	**kaur-*	to fry
ǰaliħï:	*zalʊ:*	**ǰalau*	young
Solon	Dagur	CM	
ïmaɣan	*ima:*	**ïmaan*	goat
təməɣən	*təmə:*	**temeen*	camel
unəɣən	*uñe:*	**ünien*	cow
Western Yugur	Eastern Yugur	CM	
a^{h}ʒïɣïr	*alču:r*	**alčïur* < **arčïur*	towel
kreɣï	*kʉre:*	**kiröe*	saw
paġa-	*pa:-*	**baa-*	to defecate

These word shapes are obviously not recent borrowings from the neighbouring Mongolic languages. They indicate that there must have been a different source language and/or period of borrowing. As it is unlikely that Western Yugur was ever sufficiently exposed to Written Mongol to adopt word shapes from it, or that Solon took its animal husbandry terminology from a literary language, the borrowing probably took place in the Middle Mongol period or earlier.[325] If these are indeed primitive forms surviving in various neighbouring languages, it is an unfortunate fact that so few words of this type survive in the Mongolic languages themselves.

4.5.5. Syllable-final developments

As in the central languages, syllable-final **g* is preserved in Eastern Yugur. It appears as velar *g* or uvular *ġ*. Eastern Yugur did not even develop the tendency to elide preconsonantal *g* in the suffixes (nomen perfecti) *-gsAn* and (directive) *-gsI*. It also preserves *g* in some stems where it was lost in several modern languages, such as **hogtal-* 'to fell', and **ügtee-* 'to weed'.

Final **g* developed > *r* in Dagur, as in *bula:r* < **bulag* 'spring'. In *čəllə* < *čərəl* < **čerig* 'soldier' the dissimilation (in order to avoid **čərər*) and subsequent assimilation makes the word quite different from the CM form.[326]

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[325] In view of occasional Middle Mongol relic forms with intervocalic *-h-* (< *-p-*) such as Muq *köhe* 'chain mail' and RH *quhurči* 'lute player', this is not a priori a ridiculous thought. See 2.6.6.

[326] It is unclear why some words preserved final **g* as *ɣ*, e.g. *kərəɣ* < **kereg* 'matter', *səbəɣ* < **sebeg* 'basket', unless these forms were borrowed from central Mongolic, or from

Dahejia and Ñantoq Baoan and most dialects of Mongghul generally preserve final **g*, as velar *g* or uvular *ġ*, depending on the original vowel class. The same applies to older Mangghuer materials. Fricative pronunciations did also develop. In dialects of all Shirongol languages we can observe a, probably Chinese-inspired, 'aversion' of **g* in syllable-final position. Regardless of the original harmonic class of the word, in several languages **g* has the tendency to be changed, elided, or preserved by means of an epenthetic vowel.

Dongxiang has been most consistent in its treatment of **g*. After *a*/*ə* it disappeared completely, as in *bula* < **bulag*, *kəwə* < **kebeg* 'chaff', but the word final sequences *ig*/*ug*/*üg* were replaced by *-əu*, as in *yəu* < **yig* 'spindle', *ġuduəu* < **kudug* 'well', *xodəu* < **hötüg* 'maggot', *ʒəu* < **ǰüg* 'direction'.

Kangjia has more varied solutions; in some words *-g* is retained in the form of a plosive (*pəǰəġ* < **burčag* 'pea') or of a fricative (*aŋkəǰiɣ* < **iŋgarčag* 'packsaddle'), whereas in others it was completely lost (*ima* < **aïmag* 'village'). In yet another set of (originally front-vocalic) words **-g* was replaced by *-ʁ* (*pəčiʁ* < **bičig* 'writing').

Ganhetan Baoan is another dialect that features various treatments of final **-g*. Some words retain it in its original position, such as *samsəġ* < **sarïmsag* 'garlic', others preserve it, aided by metathesis or an epenthetic vowel, such as *orġə* < **uurag* 'biestings', yet others lost it completely, such as *ćɛrï* < **čerig* 'soldier'.

Some dialects of Mongghul also elide final *-g*. Dongshan Mongghul did this most regularly. Although these dialects share an aversion of word-final *-g*, the solutions came about independently.

The diversity of modern solutions, both among and within the Shirongol languages, can be illustrated by the table on the following page.[327] The chosen solution depends partly on the height of the preceding vowel, or on the original harmonic class of the word (i.e. whether it is velar *-g* or uvular *-ġ*).

In verbs the solutions also vary. Dgx *asa-* < **hasag-* 'to ask', *ġula-* < **kulag-* 'to steal', which lost the **-g* as in noun stems, correspond to Kgj *asiğ-* ~ *asğï-* and *ġulği-*. But in case of Kgj *ʁɣ-* ~ *ʁ-* < **ög-* 'to give', the Dgx equivalent *ogi-* has preserved the final **-g* by means of an epenthetic vowel.[328] Maybe the relative scarcity of verbs with this structure precluded the development of a generally applied sound law. MgrM *xu-* < **ög-* 'to give' was probably strengthened due to frequent inflected forms with strong consonants.

Tungusic. In some other words final **g* has disappeared completely, e.g. *ačim* < **ačïmag* 'kind of bag', *kʲarəm* < **kïrmag* 'fine snow', *bɔrčɔ:* < **burčag* 'bean'.

327 The same diversity of solutions can be found in loanwords, cf. Dgx *orəu*, BaoGt *orï* 'apricot' < Turkic **örük* (< **ärük*), as opposed to Dgx *ʒaŋġa*, Kgj *jaŋgəɣ*, BaoGt *ʒangəġə* 'walnut'< Turkic **jaŋgak* (< **yaŋgak*).

328 A parallel case may be Kgj *ï-* ~ *ïɣ-* < ?**(h)ög-* 'to hit', as opposed to Dgx *əğï-*. The exact CM form of this word is hard to determine; it may have been disyllabic originally.

	**bulag* ‘source’	**čečeg* ‘flower’	**kürǰe(g)* ‘spade’[329]	**arug* ‘pannier’	**čerig* ‘soldier’
Dongshan Mongghul	*bulɔ:(ʔ)*	*ćiʒɔʔ*	*gurʒɔʔ*	*arɔʔ*	---
Danma Mongghul[330]	*bulog*	*ćiʒiu*	*guriśʒog*	*arog*	*ćiru:*
Mangghuer (C)	*bulaġ*	*ćiʒiġ*	*kurʒi*	*arʊġ*	*ćirəġ*
Mangghuer (DS)	*buləġ*	*ćiʒieġ*	*kurʒi*	*aro*	---
Ganhetan Baoan	*bəl̀əxə*	*ćiʒï*	---	*aroġuŋ*	*ćɛrï*
Ñantoq Baoan	*bəlaġ*	---	*gurʒig*	*arəġ*	*ćerəg*
Kangjia	---	*čičiʉ* ~ *čijiʉ*	*gʉrǰiʉ*	*aruğ* ~ *arğu*	*čiriʉ*
Dongxiang	*bula*	*çiʑə*	*ġuʑə*	*arəu*	*ʐïri*

Secondary syllable-final *g*’s appear in Eastern Yugur and in several Shirongol dialects, which may be due to hypercorrection in reaction to the loss of many primary **g*’s. Examples include EYu *labčăġ* < **nabčïn* ‘leaf’, BaoX *mətəg* < **metü* ‘like’, MgrH *ŋgućɔġ* < **oŋgača* ‘trough’, BaoÑ *teŋgərəg* < **teŋgeri* ‘sky’, and Kgj *ʒəʉʒəʉ ~ ʒïɣʒïɣ* ‘spider’ from a dialectal Chinese form related to *zhūzhu*[331]. There is no morphological explanation for these additions. On the other hand, it is noteworthy that the dialects where these added *g*’s occur are those with relatively stable original **-g*. Some added *g*’s are more widely distributed and may be older, e.g. MgrH *suŋgunɔġ*, BaoD *soŋġonəġ* < **soŋgïna* ‘onion’, or BaoÑ *xʊ́təg*, Dgx *xodəu* < **hötüg* ‘maggot’ (Dgx *-əu* points at *-üg*). **kürǰeg* ‘spade’ is found in Eastern Yugur and most of Shirongol. Most cases are incidental, and contradicted by other languages.

Preconsonantal **g* developed largely like final **g*. In Dongxiang it was normally elided. However, in some instances **g* was preserved by means of an epenthetic vowel and/or metathesis, as in Dgx *asuğu-* < **agsu-* ‘to borrow/lend’, *buğulie-* < **bögle-* ‘to plug’. In some Mongghul dialects it may become *-ʂ-*, as in Dongshan Mongghul *naʂdo:* < **nogta* ‘halter’, Danma Mongghul *suʂïdu-* < **sogta-* ‘to get drunk’. To be precise it is most likely that *naʂdo:* developed via an intermediate **noġʂdo:*, and that the *ʂ* does not represent the *-g-* but rather a kind of strength transfer from the original *-t-*.[332] As to Mangghuer, the older sources tend to preserve a plosive or fricative, while newer sources often lost **g* altogether (cf. **nogta* ‘halter’, **nögči-* ‘to pass’, **sogta-* ‘to get drunk’).

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[329] As the original shape of his word seems to have been **kürǰe,* it is phonetically possible, but unlikely, that the Mangghuer and Dongxiang forms without the *-g* stem from the CM form rather than from the Shirongol form **kürǰeg.*

[330] The word-final sounds written with <*g*> and <*u*> in Danma Mongghul may not differ much. Both may represent a labialised dorso-velar approximant. This seems to be supported by the fact that final <*g*> is also written in loanwords such as *putog* ‘grapes’ < Chinese *pútáo*, *dinpog* ‘lightbulb’ < *diànpào*, and unexpectedly appears in native words, e.g. *nog-* < **no-* ‘to aim at’.

[331] The same phenomenon is described for Wutun (see Janhunen et al. 2008:46).

[332] Forms like Mongghul *noġśʐi-* < **nögči-* ‘to pass’, *teśʐi* < **tobčï* ‘button’ show that the sibilant is triggered, and its precise pronunciation determined, by the following consonant.

In Dagur preconsonantal **g* develops like final **g*, e.g. *sɔrt-* < **sogta-* ‘to get drunk’, *šalle-* < **šarlə-* < **sïgla-* ‘to stitch’.

4.6. Development of CM **s* (and *š*)

4.6.1. CM **s* and **š*

Prehistorically **s* and **š* split, because syllable-initial *s-* was palatalised by a following **i* or **ï*. The status of this allophonic *š* was reinforced by loanwords from Chinese and Turkic, and by some syllable-final developments of **ǰ* (**č*) (see **hedke-* ‘to cut’ for an example). The variation between *-d* and *-s* in some other stems where no *č* or *š* variant is attested (cf. *deled-* ~ **deles-* ‘to beat’, **eüd-* ~ **eüs-* ‘to develop’) may also go back to a single original form ending in an affricate.

Although *š-* developed quite early, and is therefore well attested in the old documents, there are words which seemingly escaped this development. This is well-known from Moghol, where the words that did develop *š-*, such as *šira* < **sïra* ‘yellow’, *šira-* < **sïra-* ‘to roast’, *šitɒ:-* < *sïtaa-* ‘to light’, *šuryu-* < **sïrgu-* ‘to insert’, are outnumbered by cases such as *sudun* < **sidün* ‘tooth’, *seisün* < **siesün* ‘urine’, *siβika* <**sibüge* ‘awl’, *siŋgä-* < **siŋge-* ‘to set (sun)’, *sitrum* < **siüderi* ‘dew’.[333] In spite of the small Moghol corpus we can agree with Ligeti’s observation (1963:173) that *š-* is generally restricted to originally back-vocalic stems.[334] In the first two examples one could argue that the *s* is no longer followed by *i* and may have lost its palatal pronunciation because of that, but this explanation does not apply to the remaining examples. Although some of the Moghol forms with *s-* resemble those in the Muqaddimat al-Adab, this is not generally true, and at any rate it does not provide a reason for the absence of palatalisation in Moghol.[335]

A handful of examples can be found in Dagur, in some cases in the same words: *sə:s* < **siesün* ‘urine’, *suidur* < **siüderi* ‘dew’. Here again the *s* is not followed by the *i*, perhaps indicating that the diphthong members swapped places before *š-* could develop. Other examples may likewise be explained by early contractions and assimilations, e.g. *gasu:n* < **gasïun* ‘bitter’, *gəsu:* < **gesiün* ‘branch’, *kɔsɔ:* < **kosïun* ‘beak’, *su:-* < **siü-* ‘to strain’, *suiɣalǰin* < **sïrgolǰïn* ‘ant’, *sak* < **sïgaï* ‘anklebone; bone used in games’.[336]

In other languages this ‘refusal’ to be palatalised is a marginal phenomenon. BaoX *su:kə*, Kgj *səuki ~ sikəu*, and Dgx *sumuğə* < **sibüge* ‘awl’ are reminiscent of Moghol *siβika*. CM **siüči* ‘chisel’, perhaps related to **sibüge*, also has some reflexes with *s-*. A rare case from Ordos is *su:ri-* ‘to tuck under the belt’, which corresponds to Middle Mongol *ši’uri-* and MgrH *ʂu:ri-* < **siurï-*.[337]

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[333] For further examples see **siŋgen* ‘watery’, **(s)isegei* ‘felt’.

[334] The same explanation was formulated by Poppe (1955:122).

[335] Forms in the Muqaddimat al-Adab that resemble those of Moghol include *sisegei* ‘felt’ with *s-*, *šira* ‘yellow’, *šira-* ‘to roast’ with *š-*. However, many of the other words are attested with both consonants, such as **sibüge* ‘awl’, **sidün* ‘tooth’.

[336] Alternatively Dagur *sak* could be related to **saka(ï)* ‘knucklebone used in games’.

[337] Two further cases are MgrH *su:sən* < **siüsün* ‘portion of meat’, Dgx *sanʐa* < **sïlǰa* ‘sheep tick’.

Apart from the cases discussed above, *s* has become *š* when followed by **i*/**ï*. The former allophones *s* and *š* clearly have their separate developments.

4.6.2. Default development of **s*

CM **s* and **š* are found in all positions. In syllable-initial positions the distinction between the two depends on the following vowel. In syllable-final positions the distinction can only be explained diachronically. Therefore they will be distinguished in the following examples.

Initial: **sam* 'comb', **seri-* 'to wake up', **siree* 'table', **sokar* 'blind', **sur-* 'to learn', **sünesün* 'soul'.
Intervocalic: **asara-* 'to raise', **bosaga* 'threshold', **büse* 'belt', **ese* 'not', **hasau-* 'to ask', **hesi* 'handle', **ǰasa-* 'to make', **usun* 'water' and numerous other words wih the ending *-sUn*.
Postconsonantal:**dogsïn* 'fierce', **kaïrsun* 'scale', **oŋsï-* 'to read', **sarïmsag* 'garlic', **sölsün ~ *čölsün* 'gall bladder', **tübsin* 'level'.
Final **s*: **maŋgus* 'anthropophagous ogress', **sonas-* 'to hear', **ulus* 'people', **umdaas-* 'to be thirsty'.
Preconsonantal **s*: **aska-* 'to sprinkle', **hünüste-* 'to smell', **öskel-* 'to kick'.
Final *š*: **koš* 'double', **tuš* 'straight', **öš* 'revenge'.
Preconsonantal **š*: **auškï* 'lungs', **geški-* 'to tread', **muškï-* 'to twist'.

The default development of **s* is to remain unchanged.

4.6.3. Shifts in the place of articulation

In Dagur initial and intervocalic *s* and *š* have been retained as such (apart from the cases discussed above that never developed *š* in Dagur). The same applies to postconsonantal position, except for a small group of words in which postconsonantal, or secondarily postconsonantal, *-s-* has developed into *č*: *xaič* < **kaïrsun* 'scale', *kimč* < **kïmusun* 'nail', *nɔkč* < **nugursun* 'spinal marrow', *məmč* < **möŋgersün* 'cartilage'[338], *kɔlinč* < **kolaŋsa* 'smell of sweat'. This may be inspired by neighbouring Solon, where a similar development has taken place systematically, e.g. Solon *ɵmɵччɵ* 'ice' < **ɵmɵkčɵ* < **ɵmɵksɵ*. However, this development is not very common in Dagur; postconsonantal *-s-* is generally preserved, and in some cases assimilated to preceding consonants, as in *xuls ~ xullə* < **kölesün* 'sweat' and *šuls ~ šull*^{w} < **silüsün* 'saliva'.[339]

In Eastern Yugur initial and intervocalic *s* and *š* were preserved as well. In the Shirongol languages the distinction was also preserved, but in most dialects the old *š* was shifted towards a pronunciation more compatible with Chinese and/or

[338] Thus Dag *čulč* 'gall bladder' may have come about in two ways: it may stem from the variant **sölsün* which developed postconsonantal *č* and then assimilated the initial, or it may stem from the variant **čölsün*, in which case the final *č* is the later development.

[339] Moreover, the affrication is not even common in the Tungusic loanwords in Dagur, cf. Dag *xɔrše:l* 'swan' from a Tungusic form **hɵksıal*, which has become *ɵčče:l* in Solon.

Tibetan. It became retroflex *ʂ* in Dongxiang[340], alveolopalatal *ś* in Dahejia Baoan, and palatal velar fricative *x́* in Ñantoq Baoan.[341] In Mongghul we see mostly *ś* and occasionally *ʂ*, whereas in Mangghuer the reverse is the case.[342] The usual reflex is illustrated by the development of **sïra* 'yellow': EYu *šəra ~ šra*, MgrH *śira*, MgrM *ʂïra*, BaoD *śira*, BaoÑ *x́ira*, Kgj *šira*, Dgx *ʂïra*. In secondary preconsonantal position, retroflex *ʂ* is used in Mongghul and Baoan, rather than the default reflexes. Cf. the development of **sidün* 'tooth': EYu *šdən*, MgrH *ʂdə*. MgrM *ʂ(u)du*, BaoD *ʂduŋ*, BaoÑ *ʂdəŋ*, Kgj *š(i)dʉŋ ~ šdʉŋ*, Dgx *ʂïduŋ*. We also find *ʂ* as a reflex of the non-palatal **s*, if it ends up in preconsonantal position, as in MgrH *ʂdaːsə* < **sudasun* 'vein', BaoÑ *ʂge* < **süke* 'axe'.

New palatalisations *s* > *ś* happened systematically in Dongxiang in words originally starting with **se-* or **sö-*, or with **se* in medial position. Mangghuer sporadically does the same in words starting with **se-*, and erratically in some others.[343] Shared examples are MgrM *śiudiar*, Dgx *śiauʑie* < **seüder* 'shadow'; MgrM *śuarsï*, Dgx *śiensuŋ* < **sölsün* 'gall bladder; MgrM *śier*, Dgx *śien* < **seül* 'tail'.[344] This development does not establish a special relationship between these two languages; they share it due to shared sinification.

4.6.4. Affrication and weakening

Special developments of *s- include the following. The tendency to assimilate initial *s-* to a following *-č-* is well-known from the central languages, and is also found in Dagur, but has hardly affected the QG languages. Cf. EYu *saǰə-*, MgrH *saʑə-*, Dgx *sʐï-* < **saču-* 'to sprinkle' (see also**sečen* 'smart', **sočï-* 'to startle', **siüči* 'chisel'). Initial *s- alternates with *Ø* in **sisegei* 'felt' ~ **isegei* 'felt', **sïsun ~ *ïsun* (?) 'soot', but it is unclear which are the older variants. Also compare the peculiar alternants in Dag *tusrəː- ~ susrəː- ~ surəː-* < **tüsür-* 'to sprinkle'.

Initial *s- has unpredictably become a strong affricate *c-* or a weak affricate *ʒ-* in some words in the QG languages. This is occasionally seen in the same word in several languages, as in EYu *ʒuːna*, MgrM *ʒono*, BaoÑ *ʒina* < **sona* 'bee/gadfly', but usually only in a single language, e.g. MgrM *ʒaixan* < **saïkan* 'beautiful', BaoD *ʒetər* < **seüder* 'shadow', BaoÑ *cəbćə* < **siüči* 'chisel', BaoÑ *cïme* < **süme*

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340 There are a few exceptions, e.g. Dgx *ʂïʑə-* < **hiče-* 'to be ashamed', which should have had *ś-*, and Dgx *śiġəi-* < **sïgaï-* 'to look', which should have had *ʂ-*.

341 Intervocalic and postconsonantal **š* (as in **kosïun* 'beak', **tübsin* 'even') result in BaoÑ *-ś-*. In BaoX *x́* also occurs medially, e.g. *ɛx́ə* < **hesi* 'handle'.

342 It is not entirely clear what triggers the less common reflex to appear in Mongghul and Mangghuer. In Mongghul *ʂ* is often found preceding *u* or a consonant. It is more common in the Narin Guol data. In Mangghuer *ʂ* is normal even preceding **i*. Although there are words such as *śida-* < **sïtaa-* 'to burn', *ś-* is more commonly the result of a modern palatalisation of *s-*.

343 In MgrM *sogodi-* < **söged-* 'to kneel', *soni* < **söni* 'night', *suni-* < **söne-* 'to extinguish' **ö* had apparently become *o*, which prevented the palatalisation found in Dongxiang. Mangghuer palatalisations of **s* not found in Dongxiang include *ś(i)gə-* < **sakï-* 'to wait', *ś(i)me* < **süme* 'temple'.

344 BaoD *śiəńćiχ*, BaoGt *sańćï ~ śańćï* 'tail' (with dim. suffix) may owe their *ś-* to assimilation to the following *-ć-*.

‘temple’, Kgj *cer* < **seül* ‘tail’. The scarcity of examples and the erratic distribution make it hard to determine the historical background of this phenomenon[345]; the data are certainly insufficient to reconstruct separate consonants **c* and **ʒ* even for Proto Shirongol. The *c-* and *ʒ-* in QG languages cannot be connected to the depalatalised Khalkha affricates *c* and *ʒ*, except in one case: EYu *ʒuğul-* ‘to pull out’ corresponds to Ord *ʒuġul-* and SH *ǰuqul-*, which also occurs with *s-* in Middle Mongol and modern languages.

In the Monguor languages medial *-*s*- has often become *-ʒ-*, which seems to function as the new weak counterpart of **s*.[346] This development is not entirely predictable, but much like in the case of **b*- > *p*- and *Ø*- > *h*- it may be an attempt to fill some gaps in the system of strength oppositions.

The reflex *-ʒ-* is conspicuous in the many lexemes with the ending *-sUn*, such as MgrH *fuʒu, sʒu* < **usun* ‘water’, but cf. also *sʒaġa-* < **hasag-* ‘to ask’, *sʒargu* < **esergü* ‘opposite’, MgrM *puʒa* < **basa* ‘also’. In Mangghuer (and occasionally in some dialects of Mongghul), the same phenomenon can be seen in the treatment of intervocalic *-ᵹ-* (from earlier **š*) and *-ś-* (more recently palatalised from **s*). Examples: *qəʑər-* (< **qaᵹəl-*) < **gasïl-* ‘to turn sour’, *quʑu* (< **qoᵹu*) < **kosïun* ‘beak’, *kuźier* (< **kośer*) < **köser* ‘floor’. The emergence of weak counterparts to the strong sibilants *s ᵹ ś* makes sense as an attempt to integrate them into the system of strength oppositions. That the weak counterparts are affricates rather than weak fricatives is perhaps simply due to the fact that *ʑ* and *ź* were already well established as reflexes of CM **ǰ*.[347]

4.6.5. Syllable-final developments

Word-final **-š* is found in Turkic loanwords, in which it may represent original Turkic *-š*, as in **kaš* ‘jade’, **koš* ‘double’, **tuš* ‘straight’, **ǰemiš* ‘fruit’, or original *-č*, as in **kerbiš* ‘brick’, **öš* ‘revenge’.[348] Apart from these cases (not all listed in the comparative supplement) which are attested in Middle Mongol, there have been later loans in individual languages.

In the central languages final *-š* is often changed > *-s*; it is most often preserved in Kalmuck. The QG languages preserve the *-š* in the few words that survive, although most Shirongol languages use an epenthetic vowel (see **koš* ‘double’, **tuš* ‘straight’). The later Turkic borrowing **ta:š* ‘stone’, attested in

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345 In case of Dgx *cïra-* ~ *sïra-* < **tasura-* ‘to break (intr)’ the *c* actually stems from *t* + *s* after devoicing and loss of the first syllable vowel.

346 Poppe (1955:120) already noticed the distribution of Monguor medial *-s-* and *-ʒ-*.

347 Strictly speaking, *ʐ* (from **r*) exists in native Mangghuer words, and would have been available as the weak counterpart of *ᵹ*; *z* and *ʑ* do not occur at all.

348 In the Muqaddimat al-Adab both these words actually retain *-č*, due to ongoing Turkic influence in this variety of Middle Mongol. There is no need to reconstruct the Mongolic words with *-č*. The Arabic script makes it clear that no final vowel was added. In the documents in Chinese script syllable-final *-š* can not be distinguished from the syllable *-ši*. It will be assumed here that these words existed in CM, although the Middle Mongol and modern instances may be due to separate borrowing events.

Eastern Yugur and all of Shirongol, behaves the same as the older cases of *-*š*: EYu *taš*, MgrH *taᵱ*, MgrM *taᵱï*, BaoÑ *taᵱ*(*i*), Kgj *tχaši*, Dgx *taᵱï*.

Word-final -*s* is also found in Turkic loanwords, in which it represents Turkic -*s*, as in the Wanderwort **bars* 'tiger', -*š*, as in **ulus* 'people'[349], or -*z*, as in **boas* 'pregnant', **bös* 'textile'. Well attested native examples are mostly plurals of nouns and pronouns in -*s*.

Final -*s* developed into -*r* (or -r^{y}) in Dag *ɔlur* < **ulus* 'people', *bur*^{y} < **bös* 'fabric'. In Eastern Yugur and Shirongol *-*s* is preserved, usually with an epenthetic vowel in the latter. The development of **bös* 'textile' is as follows: EYu *pös*, MgrH *bos*, MgrM *bosï*, Kgj *bəsï*, Dgx *bosï*. Innovative pronouns using the plural ending -*s* feature epenthetic vowels in the same dialects. They include EYu *ta.s* 'you (pl.)'(based on **ta*), *buda.s* 'we (incl.)' (based on **bïda*), MgrM *da.sï* 'we' (based on **bïda*), *gan.sï* 'they' (based on **irgen*); BaoÑ *ər.sə* 'we', BaoX *o.sə* 'we', Kgj *ʉrʉ.sï*, *ʉ.sï* 'they' (based on **öer*- 'self'), Dgx *hə.s.la* 'they' (based on *hə* 's/he' of unknown origin).[350]

In verbs the situation is different. There are no native verbs in *-*š*, but verbs ending in -*s* are frequent, e.g. **bos*- 'to rise', **debis*- 'to spread', **emüs*- 'to wear', **ges*- 'to melt', **nïs*- 'to fly' **öles*- 'to be hungry', **ös*- 'to grow'. Forms like Dgx *bayasu*- < **bayas*- 'to rejoice' show that the added vowel is not simply an epenthetic vowel (which would have been *ï*), but that it, at least in some cases, is the connective vowel *U* which has become part of the stem.

Preconsonantally -*s*- and -*š*- are harder to distinguish, because in some languages *s* has occasionally developed into *š* secondarily, as in Kalm *išklŋ* < **isküleŋ* 'sour', *iškä* < **isegei* 'felt'. Unlike final *-*š*, preconsonantal -*š*- also occurs in a number of Mongolic words, including **auškï* 'lungs', **geški*- 'to tread', **muškï*- 'to twist'[351]. Preconsonantal -*s*- occurs in **aska*- 'to sprinkle'[352], and possibly in **iskir*- 'to whistle', **kaskïr*-'to shout', and **öskel*- 'to kick'[353]. As in final position, the words that occur with an alternation between -*s*- and -*d*- (such as**hedke*- ~ **heske*- 'to cut'[354]) never appear with -*š*-, so that modern languages have either the -*d* or the -*s*.

Dagur shows the most regular picture: *aurk*^{y} < **auškï* 'lungs', *gərk*^{y}- < **geški*- 'to tread', *mərk*^{y}- < **muškï*- 'to twist'. The reflex in Eastern Yugur is usually -*š*-, and the Shirongol languages feature -*ś*-, -*ᵱ*-, or -*ʐ*- which may be followed by an epenthetic vowel, as in **geški*- 'to step on': EYu *kəšgə*-, MgrH *giᵱgi*-, MgrM *kəᵱgi*-, BaoD *kəśigə*-, Kgj *keɼki*- ~ *keki*-, and Dgx *qïᵱïğəu* < **geški.ür* 'stairs'.

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[349] Unlike in **koš* and **tuš* mentioned above, no Mongolic variant with -*š* is recorded for **ulus*.

[350] Dongxiang also has some petrified plurals in -*s* (the productive plural is now -*la*) which do not feature the epenthetic vowel: *kielie.s* 'news', *fugie.s* 'the elderly generation', *kəwa.s*, *kəwa.s.la* 'children', Dgx *oći.s.la* 'daughters' (cf. **kelen*, **yeke*, **köbeün*, **ökin*). As in the case of the initial consonant clusters with *s*-, this may be a matter of interpretation. Liu (1981:16) has *kəwosï* 'children' but describes the final -*ï* as optional.

[351] Also in HY *bišlaq* (bi-shi-la-hei), Kh *byaslag* 'cheese' (also of Turkic origin).

[352] Derivations with the suffix -*skA* never develop *š* either (cf. **hanïska*, **eŋgeske*).

[353] In these cases not enough forms, or contradictory forms, are attested. Words like **iskir*- 'to whistle' are likely to undergo onomatopoeic changes.

[354] Cf. **deled*- ~ **deles*- 'to beat', **eüd*- ~ **eüs*- 'to arise', **ödken* ~ **ösken* 'thick'.

In Dagur, preconsonantal *-s-* also becomes *-r-*, but when there is another *r* in the word, the last *r* tends to be dissimilated to *l*, as in **dəurkul* (< **dəurkur*) < **debis.ker* 'mattress'. In Eastern Yugur and Shirongol preconsonantal *s* is generally left unchanged, but it may be provided with a epenthetic vowel or metathesized, cf. EYu *sʉkel-*, *sgöl-*, BaoD *galə-*, BaoÑ *ʂgel-*, Kgj *sïgeŗ- ~ sge-* < **öskel-* 'to kick'; EYu *sqa-*, MgrH *saġa-*, BaoÑ *asġa- ~ aġsa-* < **aska-* 'to sprinkle'. Epenthetic vowels are also used in derived stems such as Dgx *ʑiausïku* < **debis.kü* 'mattress'.

4.7. Development of CM **m*

4.7.1. Default (non-shift)

CM **m* was allowed in all positions in the word.

Initial: **marta-* 'to forget', **mïkan* 'meat', **modun* 'tree', **mören* 'river', **muškï-* 'to twist'.
Intervocalic: **aman* 'mouth', **emüne* 'front', **ïmaan* 'goat', **kïmusun* 'nail', **naïman* 'eight', **sumun* 'arrow', **temeen* 'camel'.
Postconsonantal: **kormaï* 'hem', **ölmei* 'sole', **sormusun* 'eyelash', **teermen* 'mill', **ǰarma* 'groats'.
Final: **em* 'medecine', **kadum* 'spouse's family',**kurïm* 'banquet', **sam* 'comb', **tulum* 'leather bag'.
Preconsonantal: **amta-* 'to taste', **dumda* 'centre', **kamčuï* 'sleeve', **kïmda* 'cheap', **umdaas-* 'to be thirsty', **umta-* 'to sleep'.

Except in final position CM **m* is quite stable in all Mongolic languages. Some modern variation between **m* and **b* reflects a prehistoric correlation between the two. Cases such as the pronoun **bï* 'I', which has the genitive **mïnu*, show that *m* can be due to secondary nasalisation. In other alternations, such as**tebene ~ *temene* 'packing needle' the form with **b* may be due to secondary loss of nasality.

The peripheral languages do not provide clues about spellings such as Written Mongol *kümün* 'person', *keme-* 'to say', *qamiya* 'where' which are assumed to be based on a prehistoric correlation between **m* and **p*. In case of 'person' the peripheral languages supports the CM reconstruction **küün* 'person'. The verb 'to say' is represented by **ge-*, i.e. a form weakened and shortened from an intermediate **kee-*. The question word 'where' occurs as **kaa-*.

4.7.2. Syllable-final developments

Word-final *-m* is preserved in Dagur and Eastern Yugur, most of Mongghul and Baoan. In Mangghuer, Kangjia and Dongxiang, *-m* was replaced by *-n* or *-ŋ*, as in MgrM *an*, Kgj *an* < **em* 'medicine', MgrM *qurəŋ*, Dgx *ġuruŋ* < **kurïm* 'banquet', MgrM *saŋ*, Kgj *san*, Dgx *saŋ* < **sam* 'comb'. This development took place three times separately. In Kangjia it was relatively recent, as shown by the fact that the secondary sequence *-an* in *an* 'medicine' and *san* 'comb' did not change into *-ɔ*, as did the CM words primarily ending in **-an*.

The assimilation of preconsonantal *m* > *n* before dentals and palatals had already started prehistorically in words such as **dumda* 'centre', **kamčuï* 'sleeve', **umdaas-* 'to be thirsty', **umta-* 'to sleep'. This development has now affected other words, both in Dagur and in the QG languages, including the dialects that have no problem in pronouncing word-final *-m*. The following examples include some cases of secondarily preconsonantal *m*. Before dentals and palatals this results in *n* or *ŋ*, e.g. Dag *k^{y}and* < **kïmda* 'cheap', EYu *köndörge* < **kömüldürge* 'breast strap', MgrM *xaŋtu* < **kamtu* 'together', EYu *nanda ~ danda*, MgrM *naŋda ~ daŋda* < **namada* '(to) me'. Preceding gutturals it results in *ŋ*, e.g. Dag *əŋk^{w}-*, MgrH *χaŋgu-* < **emkü-* 'to hold in the mouth', BaoGt *fəŋgi ~ hoŋgi* < **hümekei* 'smelly', Dgx *ćiauŋġu-* < **temgü-* 'to gather'.

In Eastern Yugur the labiality of the preconsonantal *-m-* has been preserved in the form of a postconsonantal 'echo labial', as in *neŋgwen* (< **nemgwen*) < **nimgen* 'thin, *čeŋgwen* < **čimegen* 'marrow', *eŋgwen* < **emegen* 'elderly woman', *taŋġwa* < **tamaga* 'seal'.[355]

4.8. Development of CM **n*

4.8.1. Default (non-shift)

CM **n* probably occurred in all positions in the word. However, no Mongolic words with postconsonantal *-n-* seem to have survived in the QG languages.[356] In initial and medial positions **n* tends to remain unchanged. In final position it has undergone some Chinese-inspired changes, as well as elisions for morphological rather than phonological reasons. Some nouns only ended in **n* in part of their paradigm, and the **n* in these words is traditionally called 'unstable'.

Initial: **naran* 'sun, **nere* 'name', **nidün* 'eye', **noïtan* 'wet', **nüken* 'cave'.
Intervocalic: **ene* 'this', **hinie-* 'to laugh',**hünigen* 'fox', **konïn* 'sheep', **sine* 'new'. **una-* 'to fall'.
Final (stable *-n*): **belen* 'ready', **hon* 'year', **ken* 'who'**küün* 'person'.
Final (unstable *-n*): **hüsün* 'hair', **naran* 'sun', **sidün* 'tooth', **tosun* 'fat'.
Preconsonantal: **andagar* 'oath', **anǰasun* 'plough', **höndür* 'high', **ǰančï-* 'to pound', **kündü* 'heavy'.

Except in final position CM **n* is quite stable in all Mongolic languages. CM **n* is susceptible to dissimilation if there is an **m* in the vicinity, as in EYu *lɔm* < **nom* 'book', MgrH *lumo:n* < **noman* 'mole', BaoÑ *eməla* < **emüne* 'front', Kgj *mila* <

[355] This is also seen in loanwords from Amdo Tibetan, such as EYu *namka ~ naŋkwa* 'heaven' (Lit. Tibetan *nam-mkha'*. In Amdo itself echo labials are also found. Echo labials can also be triggered by a preconsonantal *b* or merely a rounded vowel. In Eastern Yugur and Mongghul this occurs occasionally, in Ordos frequently (see **ǰabka-* 'to get lost', **sïbkara-* 'to be squeezed out', **ugaa-* 'to wash', **ungasun* 'wool').

[356] There are a few native verbs with the sequence *-rn-*, cf. Written Mongol *örni-* 'to grow', *sarni-* 'to scatter', *torni-* 'to grow'. EYu does have *tarnə* < **tarnï* 'incantation' (from Sanskrit *dhāranī*).

**mïnaa* ‘whip’. There are some cases of **n* > *l* in other environments, such as the very widespread case **nabčïn* ‘leaf’. Metathesis is also seen especially when **m*, or **r* or **l*, are near, as in **könerge* ‘yeast’, **kulugana* ‘mouse’.

4.8.2. Syllable-initial developments

In isolated cases, initial *n*- has become > *m*- without explanation, as in EYu *mulqa* < **nïlka* ‘tender’, *muçuğuŋ* < **ničügün* ‘naked’, BaoD *musï-* ~ *məs-* < **nïs-* ‘to fly’.[357]

Intervocalic *-n-* that ends up in preconsonantal position may shift to *-m-* as well, as in Dag *sums* < **sünesün* ‘soul’, BaoD *homsuŋ* < **hünesün* ‘ash’.[358] This development is not carried through systematically.

4.8.3. Syllable-final developments

When discussing the modern reflexes of final **-n*, it has to be realised that there are two kinds of stems involved, those with stable *-n* and those with unstable *-n*. These two *n*’s are phonetically identical but behaved differently in morphology. This has led to different word shapes in Shirongol.

Among the nouns with final *-n*, the overwhelming majority have unstable *-n*. Common nouns with unstable *-n* drop it before certain case endings and keep it before others (see Poppe 1955:166-170).[359] A handful of examples: **aman* ‘mouth’, **amïn* ‘life’, **čïkïn* ‘ear’, **čïsun* ‘blood’, **halagan* ‘palm of the hand’, **hekin* ‘head’, **morïn* ‘horse’, **nidün* ‘eye’, **usun* ‘water’.

All basic numerals (except **koyar* - QG languages **koar* ‘two’) are nouns with unstable *-n.* In case of the numerals there is a functional difference, the *-n* typically appears in attributive usage, and the *n*-less form in counting.

Stable *-n* is an integral part of the stem.[360] The final *-n* of adjectives is nearly always stable[361]; examples: **belen* ‘ready’, **kalaun* ‘hot’, **sirüün* ‘coarse’. A small group of nouns ends in stable *-n*, including **emegen* ‘old woman’, **hon* ‘year’, **kaan* ‘ruler’, **küün* ‘person’, **mören* ‘river’, **noyan* ‘official’, **ökin* ‘girl’, and words ending in the diminutive *-kAn*.

In the central languages these categories persist.[362] In Dagur the two shapes of the numerals are still distinguished, but the paradigmatic alternation *n* ~ *Ø* in the

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[357] In the verb ‘to fly’ this change is present in all of Shirongol except Mongghul.

[358] Compare Kalm *üms* < **hünesün* ‘ash’, *küms* < **künesün* ‘provisions’, *süms* < **sünesün* ‘soul’.

[359] So the stem variant with *-n* can be seen as a kind of oblique stem, similar to the (often irregular) oblique stems of pronouns, which also end in *-n*.

[360] Even stable *-n* may be removed from the stem before some inflectional and derivational suffixes. Examples include the plural ending *-d* and the possessive adjective suffix *-tU*. Adjectives lose their *-n* before the diminutive *-kAn*.

[361] The frequency of stable *-n* in adjectives has probably caused the development of CM **katau* ‘hard’ into Shirongol **kataun*, and **kündü* ‘heavy’ into Monguor *kundun.*

[362] Sometimes the moderns languages disagree about the status of *-n* in a given word, which means that words can be transferred to the other category. CM **oran* ‘place’ has stable *-n* judging from its presence in Ordos and Monguoric, but has unstable *-n* in Khalkha. Moreover, words without final *-n* may develop one. In case of **salaa* ‘branch’,**siree*

common noun was abolished. In the languages of the southern periphery the two types have only left some traces in the sense that stable and unstable *-n* have resulted in different developments in several languages, which are only partly phonetically determined. Given that the QG languages do not provide new insights in this regard, and many nouns have in fact changed categories, the distinction between stable and unstable *-n* has not generally been indicated in the reconstructions.

In Dagur stable *-n* is retained, and unstable *-n* is lost.

In Eastern Yugur stable *-n* survives, and unstable *-n*'s have also been made stable, i.e., made into an integral part of the stem, as in EYu *oruin* < **ereün* 'chin', *ni:n* < **ünien* 'cow', *šu:n* < **sïbaun* 'bird'. The *-n* is retained before all case endings. The numerals (except 'one') were also generalised in their shape with *-n*, and the shorter forms have become extinct.[363]

In Proto Shirongol the distinction between stable and unstable *-n* still existed. In modern Shirongol we can see different solutions in the Monguor languages on the one hand, and the Baoanic group on the other.

The Monguor languages eliminated unstable *-n* from virtually all noun stems with unstable *-n*. However this is not a sound law, but is related to a reanalysis of forms in the case paradigm. This may have started with the reinterpretation[364], perhaps as early as in Proto Shirongol, of genitive/accusatives like *morin-i* as *mori-ni* '(of) the horse' (from **morïn*). Many words feature an *n* in inflected case forms, cf. Mongghul:

nara < **naran* 'sun' > *naran-də* 'in the sun'
ude < **eüden* 'door' > *uden-də* 'at the door'
nudu < **nüdün* 'eye' > *nudun-də* 'in the eye'

Although in these instances these nouns appear with the *-n* lost in the nominative, this is not always the case. Some words that are known to have had *-n* appear without it, e.g. *morə-də* 'on the horse' (from **morïn*, and words that do not have *-n* elsewhere, appear with it, e.g. *saran-də* 'to the moon' (from **sara*).[365] Therefore such inflected forms do not have any value for reconstruction.

'table', only Khalkha added an *-n* to the declension. For other disagreements among central languages cf. **toa* 'number', **hötü* 'maggot', **kegesün* 'spoke'. The reverse development, unexpected loss of stable *-n*, has occurred in **ǰuljagan* 'animal young', which had *-n* in Middle Mongol, but now only retains it in Eastern Yugur.

363 As in the common noun, there are derivational suffixes before which the 'stabilized' *-n* of numerals is removed, e.g. the distributive *harβa:d* 'ten each' < *harβan* < **harban* 'ten'.

364 As Janhunen 2010 suggests, the Turkic accusative **-nI* may have have played a role in the development of this suffix shape. Similar convergence of suffixes can be seen in the instrumental/comitative (Salar *-la, -lanə* < Turkic **bilän*; Mongghul *-la*, Dongxiang *-lə* < **-lUA*), and in the conditional (Salar *-sA* < Turkic; *-sA* in Eastern Yugur and Shirongol < **-AsU*).

365 Cf. also *xana-n-sa* 'from everyone'from Tibetan *ha-ne*. The nomen futuri also takes *-n* before case endings, both when it is used in word formation, e.g. *ʂda:ġu-n-də* 'to the firewood' (**sïtaa-ku*), as in participial use, e.g. *śgu-n-sa* 'from going' (**ečï-kü* + **-sA*).

Baoan and Dongxiang tend to preserve both stable and unstable *-n* in all types of nominal stems. In Dongxiang it is preserved as *-n* after *ə/e* and *i*, and as *-ŋ* after *a*, *o*, *u*.

All Shirongol languages agree with Eastern Yugur on the numerals 3-10, the decads, 100, and 1000. These all end in *-n*.[366]

In Kangjia, *-n* is lost under some circumstances. This is a purely phonetic development applied to the situation Kangjia inherited from its Baoan-like ancestor language. The loss of final *-n* (via nasalisation) affects the CM sequences *-an* and *-en*, but also words with secondary vowel lowering such as *išǰɔ* < **ebčiün* 'chest', *fʉtɔ* < **hodun* 'star'. In such cases the lowering is also attested in Baoan, and partly in Dongxiang, cf. BaoÑ *ebćaŋ* 'chest', *həːtaŋ* 'star'. After high vowels *-n* is generally preserved unchanged, with some exceptions such as Kgj *sʉ* < **usun* 'water' (perhaps an old exception since it is also found in BaoÑ *sə*, Dgx *usu*). *-n* is also preserved in Kangjia after secondarily raised vowels, as in *nuğun* < **nɔgɔːn* < **nogaan* 'green'. Grammatical category is irrelevant for this Kangjia development, thus we also find *derɔ* < **dörben* 'four', *kɔ* < **ken* 'who', *dagɔ* < **ödken* 'thick'.

CM	Dag	EYu	Mgr	Dgx	Kgj
**ken* 'who'	*xən*	*ken*	*ken*	*kien*	*kɔ*
**hon* 'year'	*xɔːn*	*hɔn*	*fan*	*xoŋ*	*hɔn ~ huŋ*
**arïun* 'clean'	*aruːn*	*aruːn*	*arən*	*aruŋ*	*arun*
**gurba*(*n*) 'three'	*g^{w}arəb* & *g^{w}arbən*	*ġurβan*	*ġuraːn*	*ġuraŋ*	*ġurɔ*
**ïmaa(n)* 'goat'	*imaː*	*maːn*	*imaː*	*imaŋ*	*imɔ*

Given the phonological and morphological turmoil the peripheral languages have been subjected to, it is surprising these two categories are still recognizable. However, several words seem to have been transferred to another category. In Mongghul some words even developed against the general tendency to drop *-n*, e.g. MgrH *xaldan* < **altan* 'gold', EYu *örmön*, MgrH *rmeːn* < **öreme* 'skin on boiled milk', MgrH *smeːn* < **süme* 'temple'; in central Mongolic these words have unstable *-n* or no *-n* at all.

Some words probably lost final *-n* at an early stage, as they appear without it in all QG languages, e.g. **konïn* 'sheep', **morïn* 'horse', **möŋgün* 'silver'.

The numeral **niken* 'one' also occurs without *-n*, wheras all other numerals in *-n* preserved their *-n* in EYu and all of Shirongol. This is interesting because all of these numerals originally had an enumerative form without *-n* and an attributive form with *-n* (this system persists in Dagur and central Mongolic). Except in the

[366] In compound numerals, which are often reduced in other ways, there are *n*-less forms, e.g. BaoÑ *hara-yirsəŋ* '19' < **harban yersün* 'ten-nine', *deˈraraŋ* '40' < **dörben harban* 'four tens'. In frequently used combinations, reductions may also occur, e.g. Dgx *haru du* (< *haroŋ udu*) 'ten days' < **harban üdür*. These shortened modern forms need not go back to the old attributive forms without *-n*.

case of ‘one’, the short forms of the numerals became extinct in the QG languages.[367]

The Shirongol languages have some further cases of loss of **n* not found in Eastern Yugur, such as **ǰürüken* ‘heart’, **kuruun* ‘finger’,**usun* ‘water’. In most cases the distribution of forms with and without *-n* is more erratic, as in the following *n*-less forms: EYu *ča:sə* < **čaasun* ‘paper’, *yɔsɔ* < **yosun* ‘tradition’, MgrH *ʑus* < **ǰüsün* ‘face’. BaoÑ *helge* < **heligen* ‘liver’, Kgj *nïmʉ* < **numun* ‘bow’. Within Baoanic, Baoan dialects have *nasə* < **nasun* ‘age’, while Kangjia and Dongxiang preserve *-n*; Kangjia has *nʉdʉ* < **nidün* ‘eye’, while Baoan and Dongxiang preserve *-n*, BaoÑ *smə*, Kgj *sïmʉ* disagree with Dgx *sumuŋ* < **sumun* ‘arrow’.

Incidentally *-ŋ* appears instead of *-n* in Eastern Yugur, as in *ġurdəŋ* < **kurdun* ‘fast’. More cases of this type occur in Mangghuer, partly shared with Mongghul, such as MgrM *baraŋ*, MgrH *varoŋ* < **baraun* ‘right’, and MgrM *qaluŋ*, MgrH *xaloŋ* <**kalaun* ‘hot’.[368] However, this tendency is stronger in Mangghuer, e.g. *artaŋ* < **altan* ‘gold’, *purğaŋ* < **burkan* ‘Buddha’, *çaġaŋ* < **čagaan* ‘white’, *çorbaŋ* < **čolban* ‘Venus’.

In some cases *-m* appears instead of *-n*, as in MgrH *xardam* < **altan* ‘gold’, BaoD *ʂgum* < **öekün* ‘fat’, BaoÑ *gəm* < **gün* ‘deep’.[369]

Preconsonantal *n* and *ŋ* are usually indistinguishable in Shirongol, as well as in Dagur (see below). In Eastern Yugur there are some cases of *ŋ* < *n*, e.g. *kʉŋtə* < **kündü* ‘heavy’ and *oŋdor* < **höndür* ‘high’, which interestingly forms a minimal pair with *ondor* < **ene ödür* ‘today’.

4.8.4. Intrusive preconsonantal *n*-?

In Baoan a historically inexplicable *n-* tends to appear instead of an initial vowel preceding **d* or **ǰ*. Only **hutasun* ‘thread’ deviates from this pattern, but it does have weak *-d-* in Shirongol. The added *n-* may be seen as a weak counterpart of the voiceless fricatives that may accompany the devoicing and loss of initial vowels followed by a strong consonant, e.g. MgrH *sʒu* < **usun* ‘water’. It may also be relevant that Baoan is known to occasionally replace the preradical *s* in Amdo Tibetan words by a nasal, also preceding weak consonants, as in BaoÑ *ndəm* ‘spider’, *ndewa* ‘village’, *mbawa* ‘frog’, *nʑaŋrsə* ‘honey’, corresponding to Literary Tibetan *sdom*, *sde-ba*, *sbal-ba*, *sbrang-rtsi*.[370]

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[367] Kgj *niχɔ*, which is used in addition to *niɣe*, probably is an extended form involving the diminutive suffix *-kAn*.

[368] An unexpected *-ŋ* is present in all of Shirongol in the case of **katau* ‘hard’, probably inspired by the numerous adjectives ending in *-n*.

[369] MgrH *nem*, BaoÑ *unem* < **üne* ‘price’ apparently involves an added *-n*. Spontaneous appearance of *-m* is less likely than that of *-n*, which can be motivated by analogy.

[370] In some Tibetan loans the homorganic nasal alternates with *ʕ*, e.g. BaoÑ *ndewa* ~ *ʕdewa* ‘village’, *ŋgasəg* ~ *ʕgasəg* ‘spine’. Otherwise, however, the nasal and oral preradicals tend to retain separate nasal and oral pronunciations in Baoan, although the exact pronunciation is varied. Tibetan oral preradicals do not normally correspond to nasal dialect pronunciations. What is puzzling here is that *s* and the other oral preradicals have merged phonetically in the neighbouring Amdo dialects, for instance resulting in *h-* in Labrang.

CM	BaoD	BaoGt	BaoÑ	BaoX	Kgj
**eüden* ‘door’	*ndaŋ*	*dɔŋ*[371]	*ndaŋ*	---	*idɔ*
**ide-* ‘to eat’	*nda-*	*ndȁ-*	*nde-*	*ndə-*	*ide-*
**uda-* ‘to be late’	*nda-*	*nda-*	*nda:-*	---	*uda-*
**hutasun* ‘thread’	*ndasuŋ*	*ndasuŋ*	*ʂdasɵŋ*	---	*(n)dasun*
**üdür/*ödür* ‘day’	*udər*	*udər*	*udər*	*ndor*	*ʉdər*
**üǰe-* ‘to see’	*nʑiə-*	*nʑȁ-*	*uʑi-*	*nǰə-*	*ʉǰe-*
**hüǰüür* ‘tip’	*uʑir*	---	*uʑir*	*nǰor*	*ʉǰir*
**eǰen* ‘master; s/he’[372]	*nʑaŋ*	*ʑɔŋ*	*aʑaŋ ~ ɵʑaŋ*	*nǰaŋ*	*iǰɔ*

Interestingly Mongghul has the last word as *nʑe:n* ‘master; self (reflexive pronoun)’.[373] The initial nasal in MgrH *nʑoŋ* , BaoÑ *nʑɵŋ ~ ʑɵŋ* ‘hundred’, normally reconstructed **ǰaun*, has a different origin. Rather than replacing an initial vowel, the *n* originates from the numerals 3-9 often preceding it. Thus **dörben ǰaun* ‘400’ appears in Xiazhuang Baoan as *deri nʑɵŋ* rather than **deraŋ ʑɵŋ*. The only two units that do not end in *-n* in Baoan, **niken* ‘one’, which lost its *-n*, and **koar* ‘two’ which never had *-n*, now also appear with it, as in Xiazhuang Baoan *nəgi nʑɵŋ* ‘100’, *ġuari nʑɵŋ* ‘200’. The modern forms are also analysed differently; compare the Xiazhuang form *ġuari nʑɵŋ* to Ñantoq Baoan *ġuar nʑɵŋ*, Ganhetan Baoan *ġuarʌn ǰün*.[374]

As the unexplained preconsonantal *n* of Baoan incidentally corresponds to variants with unexplained preconsonantal *-r-* in Mongghul, it cannot be entirely excluded that they go back to an old preconsonantal consonant, cf. MgrH *rʑu:r* < **hüǰüür* (*?*üǰüür*) ‘tip’, Hongyazi Mongghul *ʐda-* < **ide-* ‘to eat’, Mongghul *rde*, Hongyazi *ʐda* < **eüden* ‘door’, Danma *rʑe-* < **üǰe-* ‘to see’.

A less frequent and apparently unrelated type of intrusive preconsonantal *n* can be found in words like BaoGt *ʑunduŋ* < **ǰeüdün* ‘dream’, Dgx *ʒawaŋ ~ ʒaŋwaŋ* < **ǰabaan* ‘insipid’, *nuduŋ ~ nuŋduŋ* < **nidün* ‘eye’, Kgj *dɔlɔ ~ danlɔ* < **dolaan* ‘seven’. The appearance of the preconsonantal nasal in these cases seems to be a kind of reduplication of the word-final consonant.

4.9. Development of CM **ŋ*

CM **ŋ* is restricted to syllable-final positions (preconsonantal and word-final). There is an unexplained early alternation with **g* in a few words, as in **gagča ~ *gaŋča* ‘alone’.

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371 The *n-* is present in BaoGt *fgindɔŋ* ‘gate’ < **yeke eüden* ‘big door’.

372 The original meaning ‘master, owner’ is retained in Kangjia. In the Baoan dialects it has come to function as a personal pronoun.

373 Mongghul *ŋgua:-* < **ugaa-* ‘to wash’ can be viewed as a similar case in another place of articulation.

374 As **ǰaun* ‘hundred’ is typically used in combination with other numerals, it is not entirely clear whether these forms reflect different analyses of the speakers of different dialects, or are merely different notations by the describing linguists.

Final: **deleŋ* ‘udder’, **düüreŋ* ‘full’, **kašaŋ* ‘lazy, **olaŋ* ‘bellyband’.
Preconsonantal: **hoŋgu-* ‘to break wind’, **höŋkeri-* ‘to roll’, **köŋdei* ‘hollow’, **maŋlaï* ‘forehead’, **möŋgün* ‘silver’,**taŋlaï* ‘palate’.

CM **oŋsï-* ‘to read’ has such diverse modern forms (with *-m-* instead of the *-ŋ-* among other things) that it his hard to decide which consonant should be reconstructed as the original one.

In the QG languages only Eastern Yugur and the Monguor languages preserve the distinction between final *-n* and *-ŋ*, e.g. in the words **buluŋ* ‘corner’, **deleŋ* ‘udder’, **dogalaŋ* ‘limping’, **düüreŋ* ‘full’, **ǰobalaŋ* ‘suffering’. In Dagur the two nasals tend to merge into *-n*.

In Bao **-ŋ* and **-n* generally merge into *-ŋ*. In Dongxiang both *-n* and *-ŋ* occur, mainly related to the preceding vowel (see under **-n* above).

4.10. Development of CM **l*

4.10.1. Default (non-shift)

In native words CM **l* is found in intervocalic, postconsonantal, final, and preconsonantal positions.
Intervocalic: **adalï* ‘similar’, **hulaan* ‘red’, **dolïa-* ‘to lick’, **ǰalau* ‘young person’, **olan* ‘many’, **öreele* ‘hobble’, **salaa* ‘branch’, **tülien* ‘firewood’.
Final: **emeel* ‘saddle’, **gal* ‘fire’, **gol* ‘river’, **huruul* ‘lip’, **köl* ‘foot’, **kudal* ‘lie’,**seül* ‘tail’, **tugul* ‘calf’, **übül* ‘winter’.
Preconsonantal: **alku-* ‘to step’, **hülde-* ‘to expel’, **ïlga-* ‘to choose’, **malta-* ‘to dig’,**tülki-* ‘to push’, **ǰalgï-* ‘to swallow’.

The default development of **l* is to remain *l*.

Like **r* and the nasals **m* and **n*, **l* is susceptible to metathesis in words like **aral* ‘island’, **gurïl* ‘flour’, **hargal* ‘dried dung’. Whereas more than a single *r* per word is avoided in Dagur, it does not have similar problems with multiple *l*’s. Indeed, *r-l* sequences are often assimilated to *-ll-*; hence we find forms such as *kurul* ~ *kull*^{w} ‘chestnut colour’ < **kürel* ‘bronze’, *ləllə:-* < **nerele-* ‘to name’, *duruld-* ~ *dull*^{w}*-* < **düreldü-* ‘to trade’.

In Dagur *-l-* is inexplicably replaced by *-r-* in a number of words, including *širəm* < **silbi* ‘shin’, *urum* < **ölmei* ‘instep’, *šurkud-* < **silgüd-* ‘to shake’. The reverse also occurs (see 4.11.1.).

4.10.2. Syllable-initial developments

When initial **l* is encountered in native words, it is a secondary development of **n-* (see **nogta* ‘halter’, **nauka* ‘gum in the eyes’).

Intervocalic **l* is quite stable in all languages, as long as the vowel following it is not elided.

Postconsonantal **l* is most frequent in verbs formed with *-lA*, which are usually based on native nouns, cf. **bög.le-* 'to plug', **čug.la-* 'to gather'.[375] There are only some words with postconsonantal **l* which as yet can not be analysed, such as **maŋlaï* 'forehead', **taŋlaï* 'palate', and **emlig* 'untamed'. In Dagur these postconsonantal *l*'s may become *n* after a nasal consonant, as in central Mongolic. In Eastern Yugur and Shirongol *l* is usually preserved in this position, although some irregularities may occur (cf. **sam.la-* 'to comb').

4.10.3. Syllable-final developments

In Dagur final **-l* is normally preserved as such, but in a number of noun stems it becomes palatalised *-l^{y}*, e.g. *gal^{y}* < **gal* 'fire', *kul^{y}* < **köl* 'foot', *səul^{y}* < **seül* 'tail'. The palatality probably stems froms the gen./acc. case suffix *i:*, although this leaves unexplained why not all similarly structured stems were affected (see also the Dagur development of **-r*).

In Eastern Yugur final *-l* is preserved as such. Within Shirongol, most of Mongghul and all of Baoan preserve it as well. In Narin Guol **-l* appears as *-r*, and may be elided, as in *ara:*(*r*) < **aral* 'axle'. In Mangghuer **-l* merges with **r* in syllable-final position, as in *ġar* < **gal* 'fire', *kuar* < **köl* 'foot'. In Dongxiang **-l* usually becomes *-ŋ*, e.g. *furuŋ* < **huruul* 'lip', *tuğuŋ* < **tugul* 'calf'.[376] As with the other final consonants, the solutions in Kangjia are quite erratic. Loss of final *-l* is seen in *gʉrʉ* < **gurïl* 'flour', *tuğu* < **tugul* 'calf', **l* > *r* is seen in *χar* < **gal* 'fire' and *kuar* < **köl* 'foot', yet other words have **l* > *n*, like *aran* < **aral* 'island'[377], or preserve **l* with an epenthetic vowel, *ǰile* < **ǰil* 'calendar year'.

The verb **taïl-* 'to untie' irregularly lost its *-l* in Baoanic as well as in Mangghuer, causing it to merge phonetically with **talbï-* 'to put' (which also developed irregularly) in Baoanic.

In verbs the situation in Mangghuer and Dongxiang is different in that *l* may be preserved by means of an epenthetic vowel. In Kangjia we find that **l* has become *-r*, or disappeared. The following list illustrates the different approaches of the three languages (some uncertain correspondences are omitted here).

MgrM	Kgj	Dgx	CM	
[*xorgo-*][378]	*hɔr-*	*xolu-*	**haul-*	to run
bar-	*bɔr-*	*bolu-*	**bol-*	to ripen
pućar-	---	*puʒalu-*	**bučal-*	to cook (intr)
guder-	*gʉdəle-*	*goʒ́ielu-*	**ködel-*	to move

[375] Others are based on foreign verbs, such as **čïŋla-* 'to listen' which may be from Chinese *tīng* (via Turkic).

[376] The Longquan dialect has varied reflexes even within its diminutive corpus: *qaŋ* < **gal* 'fire', *ġuruŋ* < **gurïl* 'flour', but *tuğu* < **tugul* 'calf', *daŋġa* < **dangal* 'clod'.

[377] All deverbal nouns in *-dAl* appear with *-n* as well, e.g. Kgj *sadan* < **ǰasa-dal* 'way of doing'.

[378] MgrM *xorgo-* and *arərġa-* are causatives. As these reflect CM **haulga- and *arïlga-* the *l* is strictly speaking preconsonantal. However, *l* before *g* results in MgrM *r* as well.

(continued)

MgrM	Kgj	Dgx	CM	
[*arərġa-*]	---	*arulu-*	**arïl-*	to clear up
ʒaʒər-	*ǰeǰi-*	*ʒaʒulu-*	**ǰaǰïl-*	to chew
guder-	*kʉtaŋ- ~ kʉte*	---	**kötel-*	to lead by the hand
futar-	*dɔr-*	*otolu-*	**hogtal-*	to fell
śidier-	*eteŋ- ~ ete-*	*oćielu-*	**ötel-*	to age
---	*sïgeŋ- ~ sge-*	---	**öskel-*	to kick

In some languages the development of preconsonantal **-l-* differs from that of word-final **-l*. The details depend on the language, and on the following consonant.

In Dagur and Eastern Yugur, and in most of Mongghul, it is preserved intact. Deviating developments include forms with nasals, such as Dag *ñɔmb-* < **nïlbu-* 'to spit'[379], and MgrH *manta-* < **malta-* 'to dig' and *santa* < **salta*(*ur*) 'Muslim'. Other deviations involve unexpected *-r-*, such as Dag *šurkud-*, MgrH *śirgudə-* < **silgüd-* 'to shake', MgrH *turgu-* < **tülki-* 'to push'.[380] The loss of preconsonantal *-l-* is also seen in Mongghul, e.g. *mutələ-* < **möltül-* 'to take off'. Narin Guol Mongghul may have *-r-* or *Ø*, as in word-final position, as in *ara:ʑi-* < **aralǰï-* 'to exchange'. The situation in Mangghuer is the same as in word-final position, so the normal reflex is *r*, as in *artaŋ* < **altan* 'gold', but occasionally *-l-* has disappeared completely, as in *çərbar ~ çubar* <**kïlbar* 'easy', *ʒərkə- ~ ʒəkə-* (<**ǰalkï-*) < **ǰalgï-* 'to swallow'.

In Dongxiang, Baoan, and Kangjia preconsonantal **l* behaves differently from the word-final position. In Dongxiang it generally becomes *-n*/*-ŋ*, e.g. *antaŋ* < **altan* 'gold', *ʒaŋqəi-* (<**ǰalkï-*) < **ǰalgï-* 'to swallow', but it may also disappear altogether. Several words feature variants such as *soŋġo ~ soğo* < **saulga* 'bucket', *haŋġa ~ hağa* (< **halgar*) < **hargal* 'dried dung'. In causatives derived from verb stems in **-l* like those listed above, alternations like *puʒaluğa- ~ puʒağa-* < **bučal.ga-* 'to cook (tr.)' occur, suggesting that awareness of the morphological structure blocked the change into **puʒaŋġa-*. Secondarily preconsonantal *-l-* may also result in *n/ŋ* or *Ø*, e.g. *haŋġa* < **halagan* 'palm of the hand', *ġuği* < **kulagaï* 'thief', *soği* < **solagaï* 'left side', *ʂəŋki* < **silükei* 'saliva'. The elided vowel was usually followed by **-k-* or **-g-*. Preceding dental and palatal consonants the reflex is *-n-*. There are only few clear examples for the sequence *-lb-*. In *ʒawari-* < **ǰalbarï-* 'to beg' the *-l-* was lost[381], but the Dongxiang developments of other words, such as **kïlbar* 'easy' and **nïlbusun* 'tear', are diverse and difficult to evaluate historically.

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[379] Dag *xuns-* 'to be hungry', usually considered to derive from **öles-*, is puzzling, especially since the *-l-* is only secondarily preconsonantal. The etymology may be incorrect.

[380] The development of syllable-final *-l-* > *-r-* is a normal development in Narin Guol Mongghul, but not in the other dialects.

[381] This is reminiscent of the development of in **talbï-* 'to put'. However, this word seems to have lost its *-l-* in a much earlier stage, at least in Shirongol and in central Mongolic.

In Ñantoq Baoan preconsonantal *-l-* is generally preserved. In Dahejia Baoan, *-n-* appears preceding dentals and palatals, but *-l-* remains preceding gutturals. Exceptions occur in the Baoan dialects. Dahejia Baoan preserved *-l-* in *altaŋ* < **altan* 'gold'; reversely, BaoÑ developed *-n-* in *χandara-* < **kaltarï-* 'to slip'. Given that all Baoan dialects allow *l* to appear in syllable-final position, this can be viewed as a conditioned assimilation to the following consonant, rather than a general Chinese-inspired 'simplification'.

Kangjia roughly follows the Dahejia Baoan pattern, with *-n-* preceding dental and palatal obstruents, e.g. *anda* < **alda* 'fathom', *ġanǰira-* < **galǰau.ra-* 'to go mad'. But as usual in Kangjia, there are exceptions, such as *bərǰi-* < **böelǰi-* 'to vomit'. Preceding *s*, Kangjia has *r*, thus deviating from its closest relatives: Kgj *mərsʉn ~ məsʉn*, BaoD *mi(n)śiu*, BaoÑ *melsəŋ*, BaoX *mənsu*, Dgx *mansuŋ*, DgxL *məsuŋ* < **mölsün* 'ice'. If other consonants follow, *r* or *l* or *Ø* appears, without a clear system: Kgj *halğu-* < **alku-* 'to step', *tʉrgʉ-* < **tülki-* 'to push'.

CM **mölsün* 'ice' belongs to a small but interesting group of words that preserved some trace of the *-l-* in Shirongol as well as in Buriat and Khamnigan, but lost it altogether in Mongol proper, Kalmuck, and Eastern Yugur.[382] Among the few other surviving words in this group are **čaalsun* 'paper', **ǰïlsun* 'glue', and **sölsün* 'gall-bladder'.[383] Only the latter preserved its *-l-* in Dagur and some dialects of Mongol proper.

4.10.4. Intrusive preconsonantal *-l-*?

In a handful of words, preconsonantal **l* appears unexpectedly. Junast notes the Eastern Yugur forms *łdeɣe-* < **itege-* 'to believe' and *łǰür* < **učïr* 'reason', in which the lateral fricative seems to be a by-product of the devoicing of the first syllable. The corresponding forms according to Bolčuluu are *həteɣe-* and *hčʉr*, with secondary *h-* but without lateral element.

The verb **ǰaǰïl-* 'to chew' may have become **ǰalǰal-* before resulting in the forms BaoGt *ǰinźàl-*, BaoX *ǰanǰal-*.

As similar explanations do not present themselves in the case of (Sanchuan) MgrM *ǰagarsï*, BaoÑ *źalġasəŋ* 'fish', these forms may be relics from a regionally preserved old form **ǰagalsun* or **ǰalgasun* (other languages suggest **ǰagasun*).

4.11. Development of CM **r*

4.11.1 Default (non-shift)

In native words CM **r* was allowed in intervocalic, final and preconsonantal positions.

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[382] This development probably took place very early, and is one of the features that Eastern Yugur shares with Mongol proper rather than with Shirongol.

[383] This handful of words should be distinguished from those whose preconsonantal *-l-* has been reconstructed for comparative purposes, but is acually absent from both Middle Mongol and Shirongol, e.g. **nalsun* 'year (of age)' (see Ramstedt 1957:75, 110).

Intervocalic: **barï-* ‘to hold’,**büri* ‘all’, **kuruun* ‘finger’, **naran* ‘sun’, **nere* ‘name’, **sirüün* ‘coarse’, **tere* ‘that’.
Final: **gaǰar* ‘earth’, **ger* ‘house’, **kabar* ‘nose’, **mör* ‘road’, **(h)okar* ‘short’, **nïur* ‘face’.
Preconsonantal: **hargal* ‘dung’, **irgen* ‘people’, **kïrga-* ‘to shave’, **örgesün* ‘thorn’, **kurdun* ‘fast’, **kürǰe(g)* ‘spade’, **teermen* ‘mill’.

Intervocalic *r* is generally preserved, in syllable-final positions it may be changed or elided.

In Dagur, *-l-* appears instead of normal *-r-* for unknown reasons in a small number of words, such as *sul*^{y} < **sür* ‘majesty’, *ǰülum ~ ǰilim* < **ǰirim* ‘bellyband’, *sələk* < **serke* ‘castrated billy-goat’. For the reverse see 4.10.1. above.

4.11.2. Intervocalic developments

Like **l* (and the nasals **m* and **n*), **r* is prone to metathesis in words such as **gulïr* ‘flour’, **aral* ‘island’. Dissimilation is common to avoid the occurrence of two *r*’s in a stem, cf. **hïroar* ‘bottom’,**hiröer* ‘blessing’.[384] This is most carefully avoided in Dagur, which led to changes such as *šurkul* (instead of **šurkur*) < **čidkör* ‘demon’, *čərəl* (instead of **čərər*) < **čerig* ‘soldier’ (in these words one of the *r*’s developed from *d* and *g* respectively).[385]

In most QG languages, as well as in Dagur, intervocalic *-r-* (and the vowel following it) is elided in a number of trisyllabic (or longer) words, which typically also contain *-l-*. Examples include Dag *alǰ-*, BaoÑ *alźa-*, Kgj *anǰa-* < **aralǰï-* ‘to exchange’; EYu *alğa-*, BaoÑ *alġa-*, Kgj *alğa-* < **arïlga-* ‘to clean’; EYu *baldu:l-*, MgrM *bərduġa-*, both caus. forms of **barïldu-* ‘to ignite (intr.)’; BaoÑ *keldə-*, Kgj *kandʉ-* < **kereldü-* ‘to quarrel’.[386]

4.11.3. Syllable-final developments

Word-final **-r* is retained in central Mongolic, Moghol, and Dagur, and also in Eastern Yugur, Mongghul[387], Mangghuer, and all of Baoan, i.e., it is considered much less problematic than **-l* in the same position.

Preconsonantal **-r-* may disappear in Mongghul preceding dentals or palatals, e.g. *puźaġ* < **burčag*, *pudaġ* < **burtag* ‘filthy’.

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[384] Cf. the development of the instrument suffix *-Ur*, which tends to become *-Ul* when the stem contains an **r*: **čakï.ur* ‘lighter’, **barï.ul* ‘handle’, **tülki.ür* ‘key’ from **čakï-* ‘to light’, **barï-* ‘to hold’, **tülki-* ‘to push’.

[385] It seems that Dagur further prefers to have the *r* precede the *l*, if they have to be in the same word, even if it makes the word etymologically less transparent, as in case of *kə:rəlč* (via **kə:lərč*) < **keeli-bči* ‘apron < belly-cover’, and *xəryəlč* (via **xəlyərč*) < **helige-bči* ‘waistcoat < liver-cover’. Cf. also causatives like *narilka:-* (instead of **narirka:-*) < **narïd-ka-* ‘to make fine’.

[386] The trisyllabic forms may survive in the same modern languages as well.

[387] Only Danma Mongghul features paragogic *i* after word-final and preconsonantal *r*, e.g. *timuri* < **temür* ‘iron’, *ġari* < **gar* ‘hand’, *murigu-* < **mürgü-* ‘to bow’.

In Dongxiang final **-r* is elided, as in *qa* < **gar* ‘hand’ (cf. *qaŋ* < **gal* ‘fire’), *ġua* < **koar* ‘two’, *gie* < **ger* ‘house’, *qawa* < **kabar* ‘nose’. Only in compounds and frequently used word combinations, in which final *-r* in fact becomes intervocalic, Dongxiang manages to preserve it, as in *ġuar udu* < **koar üdür* ‘two days’, *gier eʒen* < **ger eǰen* ‘head of the household’. However, two other developments can be found. In the first *-ŋ* appears, as in the case of original **-l*, e.g. *nuduŋ* < **nidüür* ‘pestle’; in the other we find *-əu*, as in the case of original **-g*, e.g. *mandəu* < **möndür* ‘hail’, *qïʂïğəu* < **geškiür* ‘stairs’.

As usual, the situation in Kangjia is more chaotic. In some words *-r* is retained, as in *χar* < **gar* ‘hand’, *ġuar* < **koar* ‘two’. In others it was preserved with added epenthetic vowel. Yet others dropped *-r* altogether, such as *nəχgʁ* < **nöker* ‘friend’, *čimɔ* < **temür* ‘iron’. There are also cases of alternation, as in Kgj *binǰir ~ binǰirï* < **bïlǰïur* ‘bird’, *šivaʐ ~ šivɛ* < **sïbar* ‘mud’, *ver ~ ve ~ veš* < *?*öber* ‘bosom’.

In Kangjia the final *-r* of verbs is preserved. In Dongxiang the final *-r* of verbs is escapes elision by means of an epenthetic vowel, which may at least in part of the cases be the CM connective vowel *U*. This leads to Dongxiang forms such as *kuru- ~ ku-*< **kür-* ‘to reach’, *qïri-* < **gar-* ‘to come out’, *nuru-* < **nor-* ‘to become wet’, *suru-* < **sur-* ‘to learn’, *ʂuru- ~ ʂu-* < **siür-* ‘to sweep’.

In Dongxiang preconsonantal *-r-* has been elided as thoroughly as in word-final position, e.g. *mata-* < **marta-* ‘to forget’ (cf. *manta-* < **malta-* ‘to dig’), *tağuŋ* < **targun* ‘fat’, *tuma* < **turma* ‘turnip’. The same applies to secondarily preconsonantal *-r-*, as in Dgx *ʒuğə* < **ǰürken* < **ǰürüken* ‘heart’, *taği* < **tarakaï* ‘bald’. However, in some words **r* is represented by a nasal in Dongxiang[388], e.g. *bəŋğə* < **bürge* ‘flea’; which also applies to secondarily preconsonantal *r*, as in *banğan* < **berigen* ‘sister-in-law’, Dgx *ġuŋġəi*, alongside *ġuği* < **korakaï* ‘insect’, *wanlie*, alongside *olie* < **öreele* ‘one of a pair’. Since *n/ŋ* is the regular reflex of **l* these alternations may be due to some degree of confusion between *r* and *l* (as seen in Kangjia).

In extended stems of verbs originally ending in *-r*, Dongxiang may have variants with *r* and *Ø*, as in the causatives *qïriğa- ~ qïğa-* < **gar.ga-* ‘to bring out’ and *suruğa- ~ suğa-* < **sur.ga-* ‘to teach’. Cf. also *kutala ~ kurutala* < **kür.tele* ‘until’. One of the few things we know about the other Dongxiang dialects is that they preserve cases of both final and preconsonantal *r* which are lost in Suonanba, the only described dialect.[389] These *r*-words are listed in the following table, which also includes Kangjia for comparison.[390]

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[388] This development occurred elsewhere in Kgj *ŋgʁsʁn ~ gʁsʁn* < **örgesün*, and seemingly in some Baoan forms of **irgen*, q.v.

[389] Even in Suonanba, *-r* is not as intolerable as *-l*, in that a number of words do end in *-r*, e.g. *baər* ‘money’ (a loan from Turkic), and many Arabo-Persian words.

[390] The Dongxiang data were compiled from Liu (1981:5, 8), Bökh & Čoyiǰungǰab (1985: 28, 246). The Longquan dialect also has *fugiəri* < **hüker* ‘bovine’. Ma & Chen have words such as *fugiərəi* ‘bovine’, *oɚ* ‘horn’, *noɚ* ‘lake’, without marking them as ‘dialectal’ (the forms without *-r* are also listed). The original notations of *-r* have been left intact in this section, although both *ɹ* and the ‘rhotic’ element of *ɚ* can be analysed as the syllable-final allophone of */r/* without problem.

Suonanba	Wangjiaji	Sijiaji	Kangjia	CM	
fugie	*fugəˀ*	*fugiəri*	*gər*	**hüker*	bovine
mata-	*maɹta-*	*mata-*	*marta-*	**marta-*	to forget
nu	*nuəˀ*	*nu*	*nʉr*	**nïur*	face
no	*noɹ*	*no*	---	**naur*	lake
banğan	*bəˀɣən*	---	*bergɔ*	**berigen*	sister-in-law
qa	*qaɹ*	*qa*	*χar*	**gar*	hand
ġua	*ġuaəˀ*	*ġua*	*ġuar*	**koar*	two
ewə	*uəˀ, woɹ*	---	---	**(h)eber*	horn
uʒu	*uʒuɹ*	*uʒu*	*ʉǰir*	**hüǰüür*	tip
ġuği ~ ġuŋġəi	*ġuɹği*	*ġuği*	*ğurğei*	**korakaï*	insect
ġïɹğa-	*ġïɹğa-*	*ġïɹğa-*	*qarğa-*	**kïrga-*	to shave
ćiəˀgə	---	---	---	**tergen*	cart
çïnaəˀ			*činaye*	**čïnar*	day after tomorrow

In a few words *-r-* was preserved by changing the syllabification. The *-r-* in **gurban* 'three' was preconsonantal, but after **b* had become a semivowel, the syllables *ġur-waŋ* were reanalysed as *ġu-ruaŋ*, i.e. /*ġu-roŋ*/. The same solution was chosen in **dörben* 'four', **harban* 'ten', and in *qaruğa* < **karbïga* < **kabïrga* 'rib'.[391]

In Kangjia preconsonantal *-r-* may be preserved as such, or elided, as in word-final position. In some words *-r-* has been devoiced, or assimilated to the following consonant, leading to geminates, as in *aᵣ̥ǰa ~ aǰǰa* < **arča* 'cypress', *kečče-* < **kerči-* 'to cut'.

4.11.4. Intrusive preconsonantal *-r-*?

Preconsonantal *r*'s not found in Middle Mongol sources are documented in Eastern Yugur and most Shirongol dialects. However, these dialects only share the phenomenon as such. The *r*'s have various origins, and not a single instance is supported by all QG languages.

In Eastern Yugur intrusive *r*'s appear in reduced initial syllables preceding a strong consonant, as in *hərči:sən* < **hičesün* (*?*hičöesün*) 'willow'.

Mongghol has some cases with unexplained *-r-* preceding a weak consonant, as in *rde:* < **idee* 'pus' (other cases are listed above under intrusive *-n*).

Most cases in Mangghuer are 'echo consonants', as they appear in words that already had a syllable ending in *r*. Examples include *kurmər-* < **kömeri-* 'to put upside down', *qʊrġʊrna*< **kulugana* 'mouse', *tierbər-* < **teberi-* 'to embrace'.[392]

In BaoGt *murtuŋ*, Kgj *mʉrtʉn* < **modun* 'wood' the *-r-* precedes a strong *-t-* which is itself unexplained.[393]

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[391] Longquan dialect has *ġurwaŋ* 'three' and *ʑierwaŋ* 'four', which preserve *-r-* without resyllabification.

[392] See Nugteren (forthcoming).

[393] Cf. also Ganhetan Baoan *bartï* < **batu* 'strong'.

As these same languages also preserve instances of old preconsonantal *r*, e.g. MgrM *arći-* < **arčï-* 'to load', BaoÑ *yirsøŋ* < **yersün* 'nine', there is always a possibility that some of the other cases are archaisms rather than areal innovations. This has to be decided for each word separately. The antiquity of *-r-* in **arčï-* is confirmed by its Turkic cognate **art-*, while *-r-* in **yersün* 'nine' is supported by **yeren* 'ninety'. Unfortunately such additional evidence is often absent.

Even the cases shared by several dialects may not affect the CM reconstruction, but represent regional developments which can be useful for classification and studying contact phenomena.

4.12. Development of CM **y*

Because all *y*-like elements of diphthongs are traditionally (and with due motivation) analysed as **i* or**ï*, the consonant **y* is restricted to syllable-initial positions. The traditional intervocalic **-y-* followed by **i* or **ï* is here considered as *Ø* in words like **aïl* 'campsite', **dolïa-* 'to lick' (rather than **ayïl*, **dolïya-*). In other contexts it is reconstructed, e.g. **yama* 'what', **yeren* 'ninety',**bayan* 'rich', **noyan* 'lord'.

Word-initial **y-* is fairly stable. In **yeke* 'big' and **ye*(*r*)*sün* 'nine' it is devoiced by a following strong consonant in Dagur and in most QG languages[394], probably after **e* was raised to *i*. This does not happen in the similarly-structured words **yasun* 'bone', **yosun* 'custom', which retained their non-high first vowel.

Medial **-y-* is generally preserved as well, but it may be absorbed into a diphthong after the loss of an unaccented vowel, as in Dag *bais-* < **bayas-* 'to rejoice', EYu *bəyar ~ biar* < **bayar* 'joy'.

4.13. Development of CM **h*- (and vocalic onset)

4.13.1. Introduction

In this section, the various reflexes of CM **h-* in Middle Mongol and the modern peripheral languages will be discussed. In the modern languages there is only evidence for word-initial **h-*. It is likely that CM **h-* usually[395] stems from earlier (PM) **p-*. Intervocalic **p-* has disappeared (via **h*), postconsonantal **p* has merged with **b*, except perhaps in Dagur (see under **b* above).[396] Issues related to the earlier history of CM **h-*, as well as evidence for **h* in non-initial positions, has been discussed in 2.6.6.

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[394] In **huya-* 'to tie' the collision of the **h* and **y* after elision of the first vowel has a similar result in Eastern Yugur and Mongghul.

[395] It cannot be excluded that, like Proto Tungusic, PM may have had both **p-* and **h-*. See Rozycki 1994 and Doerfer 1996 on the evidence for a primary Mongolic **h* not stemming from earlier **p*.

[396] The evidence for **p* in final and preconsonantal positions is sparse. Syllable-final **p* would probably have merged with **b*, mirroring the neutralisation of the strength opposition in the dentals and gutturals in the same positions. The final and preconsonantal **p* of Turkic is assumed to corresponded to an intervocalic **p* in PM, which later became **h* and disappeared, like primary intervocalic **p*.

Much has been written about CM **h-*, and there is no need to revisit those parts of the concensus that I agree with. The focus here will be on the reflexes of **h-* in the peripheral languages, and on how to distinguish actual evidence for **h-* from secondary developments. Non-Mongolic evidence will be largely ignored here.

Some perspectives have changed in the last couple of decades, even since Krippes' overview of 1992. For many words whose modern *h-* was deemed 'secondary' by Krippes, it is now understood what triggered their appearance: the strong consonant starting the second syllable.

4.13.2. Reflexes of **h-* in the peripheral languages

CM **h-* was preserved by at least two peripheries separately: Dagur and the QG languages. As Eastern Yugur is probably not closely related to the Shirongol languages, one may recognise each as an independent source of evidence for **h-*. The Moghol *h-*, as reconstructed by Ligeti from Leech's materials (Ligeti 1955b), is not supported by other observations of Moghol, and does not have an obvious correlation with the certain cases of CM **h-* as reflected in Middle Mongol, Dagur, and the QG languages.

In Butkha Dagur **h-* appears as *x-*[397], and is only occasionally palatalised into *š-*. In the QG languages **h* can take on many phonetic shapes, depending on the following vowel, or the loss of the vowel from the initial syllable. In Eastern Yugur **h-* predominantly appears as *h-*; occasional other reflexes occur when the first vowel is lost.[398] In Shirongol the reflexes are more varied. In Mongghul we find *x-* as a default reflex, *f-* preceding originally rounded vowels, and sibilants if the following vowel is elided. In Mangghuer *x-* is the normal reflex; *f-* only occurs marginally.[399] In Baoan dialects we mostly see *h--*, and (less often than in Monguor) *f-*, and sibilants. In Kangjia we also find *h-*, *f-*, and sibilants. Dongxiang features *h-* or *x-* generally, *f-* before originally rounded vowels, and *ś-* preceding **i*. In some dialects, and only in a handful of words, *p-* inexplicably appears instead of one of the usual reflexes.

Some straightforward examples:

CM	Dag	EYu	MgrH	Kgj	Dgx	
**harban*	*xarəb*	*harβan*	*xaran*	*harɔ*	*haroŋ*	ten
**halagan*	*xaləɣ*	*halaǧan*	*xalġa*	---	*haŋġa*	palm
**hodun*	*xɔd*	*hɔdən*	*fo:di*	*fʉtɔ ~ hʉtɔ*	*hoduŋ*	star
**hulaan*	*xula:n*	*ła:n*	*fula:n*	*fʉlɔ*	*xulaŋ*	red
**hüle-*	*xul-*	*hele-*	*fule:-*	*fʉle-*	*fəilie-*	to remain

[397] Hailar Dagur dialects lost **h-* altogether (see Tsumagari 2003:132).

[398] The Eastern Yugur materials in Sun 1990 feature some cases of initial *f-* and *ɸ-* preceding rounded vowels.

[399] In Mangghuer even the *f-* of Chinese loanwords tends to become *x-*, and *f-* followed by an unrounded vowel will be replaced by *xw-*.

4.13.3. Pseudo-reflexes of **h-* in QG Mongolic

Reconstructing **h-* in an individual word is not necessarily a straightforward matter, even when several languages seem to support it. Most of the consonants that occur as reflexes of CM **h-* (*f, h, x, ś,* etc) may also stem from other CM consonants.

Furthermore it has become clear that much of the apparent evidence is secondary. In parallel to the strengthening of initial **b-*, **d-*, **ǰ-*, **g-* into their strong (aspirated) counterparts, a development *Ø-* (vocalic onset) > *h-* has occurred under the influence of the strong consonant starting the second syllable. This can be seen in Eastern Yugur and the Shirongol languages. Some of these secundary *h*'s, such as in **ükü-* 'to die', are widely represented, while others are restricted to a single language. This indicates that these languages share the tendency to develop secondary *h-*, but the individual cases can not be reconstructed with **h-* for Proto Shirongol or 'Proto QG Mongolic'. See Svantesson et al. (2005:208).

CM	Dagur	E. Yugur	Mongghul	Dongxiang	
**eükün*	*əuɣ^{w}*	*ükʉn*	*fo:ge*	*fuguŋ*	fat
**ükü-*	*uɣ^{w}-*	*hkʉ-*	*fgu-*	*fugu-*	to die
**urtu*	*ɔrt*	*hurtu*	*ʂdur*	*fudu*	long
**alku-*	*alk^{w}-*	*alqə-*	*halġu-*	*haŋku-*	to step
**altan*	*alt*	*altan*	*xaldan*	*antaŋ*	gold

As a consequence even a trustworthy looking form such as Baoan *fgor* 'bovine' in fact does not corroborate the reconstruction **hüker* based on MMo *hüker*, Dag *xukur*, and confirmed by non-Mongolic data such as Turkic **höküz*.

CM	Dagur	E. Yugur	Mangghuer	Dongxiang	
**hiče-*	*xič-*	*hče-*	*śʑe-*	*ʂïʑə-*	to be shy
**hüker*	*xukur*	*hkor*	*xuguar*	*fugie*	ox
**huïtan ~ *hïutan*	*x^{y}aut*	*ütan*	*xuitaŋ*	*uitaŋ*	narrow
**hüsün*	*xus*	*hsʉn*	*sʒu ~ fʒu*	*usuŋ*	hair

In words of this structure, where the *h-* could have been triggered by the following consonant, we have to rely on Middle Mongol and Dagur. If a word does not exist in these languages we can not with certainty reconstruct **h-*. Similar causes for secondary *h-* are not known in Dagur, so that cases of **h-* that are only supported by Dagur can be accepted at least provisionally.

Perhaps there has been some awareness among the speakers of QG languages that **h-* can be a byproduct of consonant strength. This would explain the loss of the *h-* from words in which its veracity is firmly established, but whose second syllable starts with a strong consonant, such as **hasag-* 'to ask', **huïtan* 'narrow', **hüker* 'bovine'. Admittedly proven **h-* may also disappear in words of a different structure.

On the other hand there are some instances where Eastern Yugur, Mangghuer, and Kangjia have *χ-*, *q-*, or *p-* instead of the normally expected reflex of **h-*, e.g. MgrM *qarġa* < **χarġa* < **halagan* 'palm of the hand'.[400] Cases with *p-* < **h-* such as EYu *pɔdən* (~ *hɔdən*) <**hɔdun* 'star' are discussed above under strengthening of **b-*. Although it can be safely assumed that many instances of CM **h-* go back to earlier (PM) **p-*, it does not follow that forms like EYu *pɔdən* are relics from that period. Cf. 2.6.6 for PM **p*.

4.13.4. Reliability of Middle Mongol data

Whenever the QG data are ambiguous it is useful to consult Dagur, which to our present knowledge does not feature similar secondary *h*'s. Obviously Middle Mongol is also useful to corroborate reconstructions.

However, it is important not to consider Middle Mongol as an infallible reference point to resolve disagreements between peripheral languages. In this and other issues such as palatal breaking, loss of intervocalic *-g-* and degree of vowel contraction, documents like SH are far from consistent. Given that they are often transcribed from the Uigur script by scribes who had to decide whether a word started with *h-* or vocalic onset, or whether an intervocalic <*g*> was pronounced or not, it is hardly surprising that some mistakes were made.

Variant pairs like SH *asaq-* ~ *hasaq-* 'to ask', *atqu-* ~ *hatqu-* 'to hold', *o'ara-* ~ *ho'ara-* 'to disobey' raise the question which variant is the historically correct and therefore authoritative Middle Mongol form. Whether we see such variants as being due to scribal inconsistencies or as evidence for actual language variation, they reduce the decisive power of such words, and even that of the words that are only known in one notation.

As to the sources in Arabic script, only some of their content can be traced back to forms written in Uigur script. Nevertheless they do contain inconsistencies, usually in the form of the unexpected presence of *h-* rather than its unexpected absence. In the Muqaddimat al-Adab, many frequent words that normally have vowel onset (written *'*) occasionally appear with *h-*, e.g. *hirgen* 'people', *hörgü-* 'to lift', *huila-* 'to cry', *hündüsün* 'root'.[401]

In the light of the above we should not be too eager to label modern *h*'s 'secondary' as soon as they seem to be contradicted by the Middle Mongol sources. Words with unexpected *h-*, especially with unexpected *h-* in more than one subgroup, such as the following, are not automatically disqualified by Middle Mongol. Even words whose **h-* is only documented in a single modern language, some of which are listed in the following pages, should not be discarded as long as no mechanism is discovered that triggers secondary *h-*.

Some *h*'s, especially those confirmed by both Dagur and the QG languages, may well go back to the CM period. This applies to **humba-* and **hinie-* below.

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[400] Secondary *h-* can develop a hypercorrect form as well, as in Eastern Yugur *qusun* < **χsun* < **usun* 'water'.

[401] In some cases the only notation is with *h-*, as in the frequently occurring *hildü* 'sword'. This spelling can not be dismissed as an incidental mistake, but can nevertheless not be reconciled with the other Middle Mongol sources, and the modern languages.

Cases found in fewer languages may at least be of areal relevance and useful for classification.

CM	Dagur	E. Yugur	Mongghul	Dongxiang	
*?*hinie-*	*xinəː-d-*[402]	*n̥iː-*	*śine-*	*śinie-*	to laugh
*?*humba-*	*xumpaː-*	*mba-*	*xumba-*	*(f)unba-*	to swim
*?*hunu-*	*ɔnu-*	*hɔnə-*	*funi-*	*unu-*	to ride

The evidence for CM **h-* must be assessed for each word individually. There are many evidence 'configurations', a selection of which are shown in the table below. It greatly simplifies the actual situation, as it does not take into account *h* ~ *Ø* variations within subgroups or dialects, e.g. MgrH *xana-* ~ *ana-* 'to heal'.

	MMo	Dag	EYu	Shir	example
Unanimously preserved primary **h-*	*h*	*h*	*h*	*h*	**harban* 'ten', **heür* 'nest', **hüleü* 'surplus', **hon* 'year'
Primary **h-* lost in one group	*h*	*h*	*Ø*	*h*	**huuta* 'bag', **huïtan* 'narrow'
Less widely attested, but not contradicted.	*h*	*h*	---	---	**haluka* 'hammer', **haŋka-* 'to thirst'
Possible primary **h-* not attested in MMo	*Ø*	*h*	*h*	*h*	**hinie-* 'to laugh'
Possible primary **h-* not attested in MMo	*Ø*	*h*	*Ø?*	*h*	**humba-* 'to swim'
Seemingly unanimous **h-*, but it may be secondary in QG languages	*h*	*h*	*h?*	*h?*	**hiče-* 'to be shy', **hüker* 'bovine', **hüsün* 'hair'
Possibly old **h-* in (some) QG languages only	*Ø*	*Ø*	*h*	*h*	*?*hunu-* 'to ride'
Possibly old (regional?) **h-* in Shirongol only	*Ø*	*Ø*	*Ø*	*h*	*?*hamura-* 'to rest'
Possibly old **h-* in Dagur, contradicted elsewhere	*Ø*	*h*	*Ø*	*Ø*	**(h)eber* 'horn', **höndür* 'high'
Possibly old **h-* in Dagur only, but not contradicted	---	*h*	---	---	**hilidün* 'tinea'
Possibly old **h-* in E. Yugur only	*Ø*	---	*h*	*Ø*	*?*hile* 'clear'
Secondary *h-* in QG	*Ø*	*Ø*	*h?*	*h?*	**urtu* 'long'
Secondary *h-* in Shirongol only	*Ø*	*Ø*	*Ø*	*h?*	**alku-* 'to step', **eükün 'fat'*
Secondary *h-* in E. Yugur only	*Ø*	*Ø*	*h?*	*Ø*	**eke* 'mother'

[402] In Dagur the verb was reshaped on the basis of the derived noun *xinəːd* < **hinie.dün* 'laughter'.

4.13.5. Dagur evidence for CM **h-*

A relatively large group of words only has evidence for CM **h-* in Dagur. This is partly because of the abundant Dagur materials. Furthermore, due to the word-initial accent Dagur has preserved the first syllable better than the QG languages. The following words have not been attested so far in the QG languages.

Dagur	CM	
xa:ɣə	**haaga*	bran
xaləɣda:	**halagdaa*	jerboa[403]
xata:	**hataa*	wish, ambition
xər^{y}e:n	**herien*	grey
xərkəl-	**herkele-*	to be polite[404]
xərkir-	**herkire-*	to feel pain in the pit of the stomach
xild	**hil(i)dün*	ringworm

The following words do exist in Middle Mongol and/or one or more QG languages, but these do not provide support for the **h-* suggested by the Dagur form.

Dagur	CM	
xač	**hača*	fork[405]
xəsruɣ^{w}	**hesergü*	opposite
xəur	**heber*	horn
xəur	**hebür*	sunny spot
xundur	**höndür*	high[406]
xuns-	*?*höles-*	to be hungry[407]
xuǰu:r	**hüǰüür*	tip

4.13.6. Evidence for CM **h-* in the QG languages

In all Shirongol languages and Eastern Yugur the appearance of initial *h-* (and other modern consonants associated with **h-*) can be triggered by a strong consonant starting the second syllable. See Svantesson (2005:208) for a couple of examples spanning the QG languages. Additional examples include **alku-* 'to step' (without

[403] Enkhbat (1983) has both this form and *alərda:n*.

[404] This form may confirm the impression that **erke* 'power' and **erke* (or rather **herke*) 'sweet, spoiled, etc' are different words. **erke* 'power' occurs without *h-* in Middle Mongol and QG languages.

[405] A form *hača* or *haččа* 'fork' is also found in Turkic languages and Tajik. EYu *hača* 'rope for tying up cattle' may be related despite the semantic difference. If so, the EYu *h-* does not constitute evidence for **h-* as it may have been triggered by the following strong consonant **č*.

[406] This word is found as *höndür* in the Turkic language Azeri.

[407] As the *-n-* is also unexpected here, we may be dealing with a different etymon.

h- in Eastern Yugur), **eükün/*öekün* ‘fat’ (in most of Shirongol[408]). Due to the inconsistent application of this tendency even a well documented secondary *h-*, as in **ükü-* ‘to die’, cannot be reconstructed for Proto Shirongol.

Among the QG languages Mongghul most often features secondary *x-*. This agrees with the fact that it also strengthens initial **b-*, **d-*, **ǰ-*, **g-* more frequently than its relatives. The following words may owe their *x-* to the following strong consonant:

Mongghul	CM	
xada	**agta*	stallion
xalʒai-	**alčaï-*	to spread the legs
xamsa-	**amsa-*	to taste
xamta	**amtan*	taste
xaʒir	**alčïur* < **arčïul*	scarf
xaŋgu-	**emkü-*	to put in the mouth

Likewise, Eastern Yugur *h-* in words such as *hčʉr* ‘reason’, *hke* ‘mother’, *hsʉn* ‘milk’, *hsəra-* ‘to raise’ (< **učïr, *eke, *üsün, *asara-*) does not support an original **h-*, but merely constitutes a vestige of the initial syllable which was devoiced and lost. Similarly structured words with known CM **h-*, such as *hče-* < **hiče-* ‘to be ashamed’, *hkor* < **hüker* ‘bovine’, *hsʉn* < **hüsün* ‘hair’, are therefore not useful as additional evidence for it.

In Eastern Yugur there seem to be no words with secondary *h-* followed by a full non-high vowel, like MgrH *xaldan* < **altan* ‘gold’. The rare cases with a full vowel may be explained differently. In *qusun* ‘water’, although it ultimately stems from **usun*, the first *u* may have been inserted into an earlier form *χsun* with secondary *h-*. Bolčuluu’s notations *hərte* (< **erte*) ‘early’ and *hurtu* (< **urtu*) ‘long’ may be attempts to describe pronunciations *ɻte*, *ɻtu* (Junast: *rde* and *rdə*[409]).

In Baoanic such instances of secondary *h-* are not that common, but they do occur, as in Dgx *huntura-*, Kgj *huntra-* < **untara-* ‘to sleep’.

Initial *h-* in words that do not have this structure may be useful for reconstruction purposes. Some of the following words also have Mongghul variants starting with a vocalic onset, and most of them are attested without **h-* in one or more peripheral languages. This means that they are not strong examples for original **h-*.

[408] This case stands out because it developed the secondary **h-* preceding a vowel length.

[409] It is not clear whether Bolčuluu and Junast actually *heard* different pronunciations. There is a correlation between devoicing of the first vowel, initial *h*, and the presence of preconsonantal **r* or **l*. In **erte* and **urtu* both the *-t-* and the *-r-* are original, but in *hərči:sən* < **hičesün* ‘willow’ the *-r-* was probably inserted later. In *hrbai* ~ *rbai* < **arbaï* ‘barley’, *hərke* < **erke* ‘power’, and *hdög* < **öteg* ‘dung’ the *h-* was probably added.

Mongghul	CM	
xamur ~ amar	*?*amur*	quiet
xana- ~ ana-	*?*ana-*	to recover
xerge	*?*ergi*	bank, shore
xerge	*?*irge*	ram
fo:roŋgi:	*?*oraŋgï (?*orankaï)*	paralysed[410]

The first syllable vowels in the above examples are non-high, which, together with the weak consonant environment, prevents them from being lost. If the vowel is elided, the modern forms are difficult to evaluate. It seems impossible to tell whether the *s-* of *sʒaġa-* represents the primary *h-* of **hasag-* 'to ask' or is merely a relic of the devoiced vowel. Cf. also *sʒu* < **hüsün* 'hair' and *sʒu* < **usun* 'water'.

Cases of *h-* which can not be explained by a following strong consonant include EYu *helʉ:r* 'flatiron', MgrM *χuduri-* 'to lead'[411] for the words otherwise known as **ile*, **iliür*, and**udurï-*.

If such unexpected instances of **h-* are found in several languages, such as **hunu-* 'to ride', **haur* 'steam; anger', **hamura-* 'to rest', they make a stronger case for CM **h-*. In case of **hinie-* 'to laugh', the **h-* is confirmed by Dagur, Eastern Yugur, and all of Shirongol. Even if a secondary explanation were found, the wide distribution would still suggest an *early* secondary development.

Another complication in weighing the evidence lies in the fact that even unambiguous **h-* can often be lost in one or more languages, especially in words with a strong consonant beginning the second syllable, as in MgrH *a:ći* < **hačï* 'grandson', Dgx *asa-* < **hasag-* 'to ask', EYu *ütan*, Dgx *uitaŋ* < **huïtan* 'narrow', EYu *u:ta* <**huuta* 'bag', Dgx *usuŋ* < **hüsün* 'hair'. This suggests that *h-* and its derived pronunciations are increasingly treated by speakers as automatic (and optional) side effects of some phonetic environments. Such instances of **h-* have thus become less distinctive synchronically, and less informative diachronically.

However, **h-* can also be lost from words devoid of strong consonants, e.g. MgrH *ir* < **hir* 'edge of a knife'. BaoÑ *өʑөr* < **huǰaur* 'root'. In a case like MgrH *xana- ~ ana-* 'to heal', the authenticity of the **h-* is not confirmed by other languages. On the other hand, there is no known mechanism that would produce secondary *h-* in words without strong consonants.

4.14. Some notes on metathesis

Metathesis of consonants is a relatively frequent but unpredictable phenomenon. In some phonetic environments it is more likely to occur. It especially affects the 'liquids' *l, r, m, n*, especially in words containing two or more consonants from this set, and in stems that are trisyllabic or longer. Other cases of metathesis generally

[410] Cf Kh *orongi* H398a 'lame in the hind leg(s) (of an animal)', Ord *oroŋġo* M521b 'disease in horses consisting of a kind of paralysis of the hind legs'. Mongghul also has the verb *fo:ro-* X59 'to be paralysed'. If this is related to MMo SH *ho'ara-* H76, *o'ara-* H120 'to neglect, abandon', the **h-* is confirmed.

[411] The Kangjia cognate *utur-* does have a strong *-t-*, but that is itself inexplicable.

involve the exchange of the elements of a cluster. Morphologically transparent stems may resist this general tendency.

EYu *ġulər*, BaoD *ġulər*	**gurïl*	flour[412]
EYu *saltu:r*	**sarta.ul*	Hui
MgrH *xaril*	**kalïar*	wild onion
MgrH *ćirval*	**kïlbar*	story
MgrM *balər*	**barïl*	handle
BaoÑ *alar*	**aral*	river
BaoÑ *harġal ~ halġar*	**hargal*	dung
Dgx *koroloŋ*	**köl oraŋ*	footprint
Dag *murtul*	(**muldur* <) **möndür*	hail
Dag *uryil*	**üliger*	story
Mog *ulu:r*	**huruul*	lips

Given the disagreements between the modern dialects, such cases cannot generally be dated back to an early period. On the other hand several instances of metathesis are recorded in Middle Mongol. The form **könerge* (< **köreŋge*) 'yeast' is found in Shirongol, Eastern Yugur and Dagur, and is also reflected by the 'Phagspa form. The form **malaga* (< **magalaï*) 'hat' can also be assumed for Shirongol; only Dongxiang has *mağala* in addition to *malağa*.

Different tendencies can be observed in the following cases, where Eastern Yugur swapped the labial and velar consonants, whereas Mongghul moved the liquid to the right.

EYu	MgrH	CM	
xalğwa	*xaulġa*	**kalbuga*	spoon
oryeme	*murge*	**örmege*	coarse fabric
tarğwan	*to:rġa*	**tarbagan*	marmot
χarğwa	[*xarġa:*]	**kaburga*	rib

Other cases of *-r-* moving to a different syllable include the following.

EYu *nurğusun*	**nugursun*	spinal marrow
EYu *saŋġarčaġ*	**sarkïnčag*	paunch[413]
MgrH *nurdaġa*	**nïdurga*	fist
MgrM *kuərməgɤ*	**kömürge*	trunk
BaoÑ *udərnə mərə ~ urdənə mərə*	**üdür(ün) büri*	every day
BaoÑ *ərmərʒi*	**öermiče*	other
Kgj *ġadar ~ ġarda*	**kadaar*	bit of a bridle

[412] This type is also common in central Mongolic, cf. Khalkha *gulir ~ guril* 'flour', *xürel ~ xüler* 'bronze', *čalir ~ čaril* 'crowbar'.

[413] Eastern Yugur resembles Kalmuck *säŋgrcg* here, while Buriat *harxinsag* represents the other form.

Swapping nasals

BaoÑ *menbə- ~ nenbə-*	**nembe-*	to cover
MgrM *meŋgen*	**nimgen*	flimsy
MgrH *nama:n ~ lama:n*	**manan*	mist

Clusters of liquids and nasals

EYu *elməg*	**emlig*	untrained (horse)
MgrH *samla- ~ salma-*	**sam.la-*	to comb
EYu *kelme-*	**kemle-*	to gnaw
EYu *ölmö*	(**ömlö* <) < **emüne*	front
EYu *nelme-*	**nemle-* (*?*nemne-*)	to cover

Velar/apical clusters

BaoD	BaoÑ	Kgj	CM	
ośiġəi	*өχśə*	---	**auškï*	lungs[414]
---	*asġa- ~ aġsa-*	---	**aska-*	to sprinkle
muśiġə-	*məχśal-*	*mešχe-*	**muškï-*	to twist
---	*bərke*	*besge*	**bögse*	buttocks
səχtə-	*səgte-*	*sïχte-*	**sedki-*	to think
---	*čigtar* (BaoX)	---	**čidkör*	demon

The erratic forms do not permit us to assume these metatheses even for Proto Baoanic alone. The following case shows widespread agreement in Shirongol: MgrH *asġʊ-*, BaoD *asχo-*, Dgx *asuğu-* < **agsu-* 'to lend'.

Clusters *-lb-* and *-rb-*

EYu *eblig*	**elbeg*	abundant
MgrH *a:blu:*	**albïn*	will o' the wisp
BaoÑ *χabrə-*	**karbu-*	to shoot
BaoÑ *harwaŋ ~ hawraŋ*	**harban*	ten

Other cases of metathesis, usually with one or more of the motivations mentioned above, include:

EYu *χunaġla*, MgrH *xʊnaġla*	**kulugana*	mouse
EYu *mökör- ~ kömör-*	**kömeri-*	to topple
EYu *šwe:-*	**(h)ebsie-*	to yawn
MgrM *amula*	**alïma*	fruit
MgrM *aŋɕïġo*	**oŋgača*	trough

[414] This type of metathesis can also be found in central Mongolic, e.g. Khalkha *dogšin ~ došgin* < **dogsïn* 'fierce', Ordos *göškön* < **kögsin* 'old'.

(continued)

BaoGt *mȧṣġə*	**margaasï*	tomorrow
BaoX *dalġaŋ*	**daŋgal*	clod
BaoÑ *ćamχa*, Kgj *ćamġa*	**čakïrma*	iris; orchid
Kgj *tumar ~ turma*	**turma*	turnip
Kgj *eteɻ- ~ erte-*	**ötel-*	to age
Dgx *sulara- ~ surala-*	**sula.ra-*	to come loose

Cf. also (Sanchuan) MgrM *ǰagarsï*, BaoÑ *ʒalġasəŋ* 'fish', which forms may be relics from a regionally preserved old form **ǰagalsun* or **ǰalgasun*. It is not known which of these forms is the original, since other languages suggest an original form **ǰagasun*.

4.15. Some notes on intrusive consonants

In the sections on **n*, **l*, **r*, and **h* above, the intrusive (non-etymological) occurrence of these consonants has been discussed. Intrusive *n-* appears word-initially in words that lost the initial vowel preceding a weak consonant. Unexpected *l* and *r* mostly appear preconsonantally as well, but they predominantly precede strong consonants. Secondary *h-* occurs word-initially, and is triggered by a strong consonant starting the second syllable. Cases like the *-p-* in MgrM *sanpəʒəġ* <**sarïmsag* 'garlic' are also due to devoicing, in this case caused by the second *-s-*.

Other intrusive consonants are due to a reduplication that makes the syllables of a word stem more alike, usually by assimilating the first to the second. Examples include Dgx *ʒawaŋ ~ ʒaŋwaŋ* < **ǰabaan* 'insipid', MgrM *tərmər* < **temür* 'iron', BaoX *ǰanǰal-* < **ǰalǰal-* < **ǰaǰïl-* 'to chew'.

The unexpected *b* in the following cases may stem from an earlier *-w-* which in its turn was due to a reinterpretation of a rounded vowel: Dag *dulb*^{y} < *dului* < **dülei* 'deaf', *xɔb*^{y} < **kuï* 'sheath', BaoÑ *həbrə* < **hərbə* < **horoi* < **horaï* 'crown of the head', *cəbćə* < **siüči* 'chisel'.[415]

For the unexpected appearance of *g* (in syllable-final positions) see 4.5.5.

In other cases there is no obvious explanation for the secondary appearance of the additional consonant. A widespread example is the following: EYu *hambu:l-*, MgrH *xambulə-* < **hamuul-* 'to extinguish'. MgrM *xaŋbura-*, Kgj *hambəra-* < **hamura-* 'to rest'. Most other instances seem to be limited to the Monguor languages, e.g. MgrH *namur ~ nambur* < **namur* 'autumn', *ćomboġ* < **čomug* 'heap', MgrM *mandəġai* < **menekei* 'frog', *xunduġai* < **hünegen* 'fox', *xunbuġai* < **hümükei* 'smelly'. Some of these cases may preserve an older form.

[415] Chén (1986:50) notes that syllable-final *b* can 'sometimes' be pronounced as a fricative, so that the Baoan forms may actually be *həwrə* and *cəwćə*.