

# An introductory study of Mongolian intonation

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## Abstract

*This paper presents an introductory study of Mongolian intonation. Some preliminary results on the use of pitch in forming declarative utterances and in signalling focus are presented.*

## 1 Introduction

Halh (Khalkha) Mongolian, which is investigated in the present study, is one of the ten Mongolic languages that belong to the Altaic language family.

Mongolian intonation is poorly investigated. It is described shortly by Poppe 1970, and in Gerasimovic 1970 and Zolxoev 1970 it is mentioned as a part of the discussion about Mongolian stress. Some important features of Mongolian have to be mentioned in connection with the present study.

Mongolian lacks phonological stress. The discussion about its phonetic nature and placement is not solved, and there are at least four opinions about it (Svantesson et al.). The present study does not propose any hypothesis about Mongolian stress. Instead, an attempt to get a consistent picture about tonal behaviour is made.

The other important feature of Mongolian is its phonological use of vowel duration. According to Svantesson et al. the vowel of the first syllable may be phonologically long or short while the vowel of the non-initial syllable is short or reduced (non-phonemic). Finally it is important to mention the syllable structure in Mongolian. The surface representation is (C)V(V)(C)(C)(C) (Svantesson et al.), and a consonant followed by a vowel is the onset of the next syllable.

## 2 Material and method

The material consists of 22 utterances. The basic utterance is *aaw jama xar<sup>1</sup>u<sup>2</sup>ḡən* "Father is herding goats" with SOV order and its longer variant *manai aaw ᠵᠡᠭᠡᠨ jama ᠰᠤᠭᠠᠷ xar<sup>1</sup>u<sup>2</sup>ḡən* "Our father is herding a lot of goats in the mountain". The other 20 phrases are question-answer pairs with different elicitation of focus depending on the question.

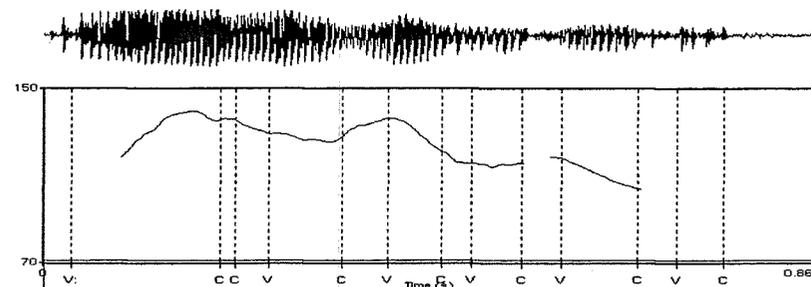
Three male speakers of the Halh dialect (named here speaker A, B and C) from Ulaanbaatar (the capital of Mongolia) read the phrases.

The material was recorded on a portable cassette recorder and copied to DAT tape and transmitted into the computer. The recordings were analysed using the PRAAT program. The values of F0 maxima and minima were measured. The excursions of tonal gestures were measured in part of the material.

## 3 Results

Most of the tonal gestures have a rising-falling configuration independently on the placement of focus in an utterance. The rise is realised in the onset and the fall in the nucleus of a syllable. If the onset is lacking both rise and fall are realised within the vowel nucleus. The rise or fall can be tied to more than one syllable following each other.

F0 maxima show a tendency to have greater values in the second syllable of each word. In the following they are called accentuated, which is a hypothetical denotation. The last trisyllabic word is more problematic and it is difficult to say which of its syllables is bearing the tonal accent (i.e. is accentuated). See Figure 1.



**Figure 1.** Utterance *aaw jama xar<sup>1</sup>u<sup>2</sup>ḡən* (bold for syllables with greatest F0 maxima). "Father is herding goats" (SOV order) elicited without any focus. The beginning of each vowel and consonant is marked with V or C. Speaker C.

When focused the accentuated syllables get values tending to dominate in the utterance. See Table 1 and Figures 2 and 3. This picture is however complicated by the last word that does not get any higher values when focused.

**Table 1.** The F0 maxima for the accentuated syllables in the utterance *manai aaw ᠵᠡᠭᠡᠨ jama ᠰᠤᠭᠠᠷ xar<sup>1</sup>u<sup>2</sup>ḡən*. Two elicitations of the utterance with the same placement of focus are shown. Values for focused syllables are given in bold. Speaker A.

manai	aaw	ᠵᠡᠭᠡᠨ	jama	ᠰᠤᠭᠠᠷ	xar <sup>1</sup> u <sup>2</sup> ḡən
105	100	104	97	102	88
107	99	98	99	95	80
95	90	<b>115</b>	98	100	87
100	91	<b>115</b>	95	106	79
94	86	101	96	<b>108</b>	84
88	83	89	88	<b>100</b>	82

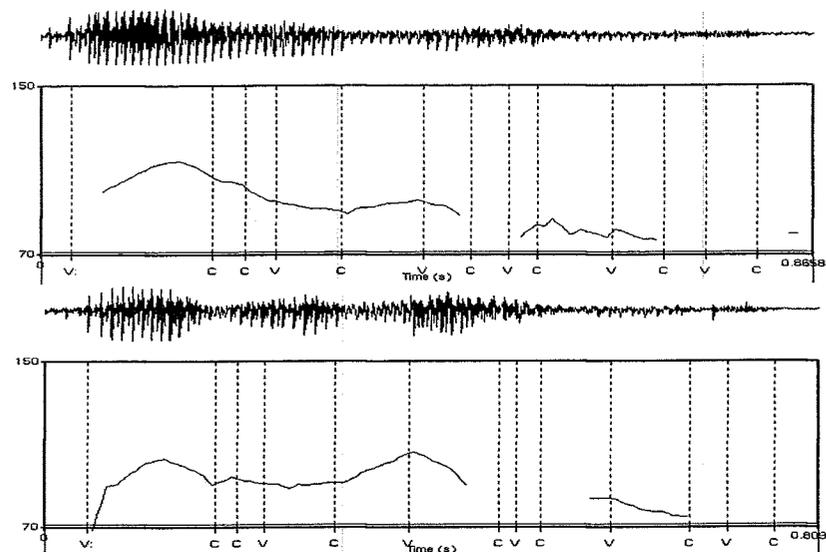


Figure 2 and 3. Utterance *aaw jama xar'ubžan* "Father is herding goats" with focus on the first word *aaw* in Figure 2 and focus on the second word *jama* in Figure 3. Focus is signalled by greater F0 maxima in the beginning of the tonal fall within the vowel of the accentuated syllable. Speaker C.

#### 4 Interpretation of the results

Each syllable tends to get a rising-falling gesture with greater or minor F0-maxima depending on its unaccented, accented or focused status. According to the data it is the last syllable in the word that gets the highest F0 value, and it is called accentuated here. An investigation of a broader corpus with words with more syllables than two is needed to draw any conclusions about the placement of the tonal accent in Mongolian words.

The rise-fall is analysed here as one gesture and not as two separate gestures in accordance with its phonetic realisation. It can be realised within one long vowel when the onset is lacking. The rise in CV(C) syllable is realised within the consonantal onset even if it is voiceless according to our material. Consequently, each CV(C) syllable marked with the rise-fall begins with the rise in its onset.

The measurement and comparison of F0 maxima and minima indicate the more systematic use of just F0 maxima in accentuating and focusing the word. It is the value from which the fall of a focused word begins that is assumed here to be communicatively significant. This F0 value is relevant within each actual utterance, and the measurement of its mean value for all focused positions does not give any systematic picture. So it is not meaningful to get statistics on values of F0 maxima in focused words. It is the relation between F0 maxima in each actual utterance that creates a contrast between focused and unfocused constituents.

The examination of the longer utterances gives a systematic picture of phrasing pattern. The utterances consist of three phrases (alternatively four with *is herding* and *mountain* as two separate phrases) – complement and head (*our + father, a lot + goats, in mountain + is herding*). The first word in each pair gets the dominating F0 maximum. (See Figure 4). Even the F0 minima show a systematic realisation here. The fall in the first word does not

reach the same deep F0 level as the fall of the next word of the phrase. It can be assumed that the phrasing in Mongolian is signalled by the higher F0 level for the fall on the first word of a phrase and the greater F0 minimum for the fall in the last word of the phrase.

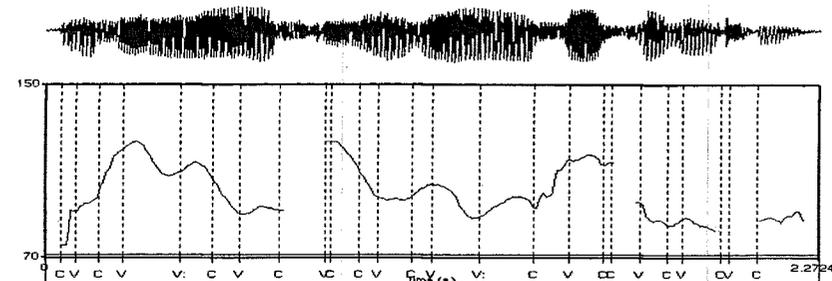


Figure 4. The utterance *manai aaw žəŋ jama ušar xar'ubžan* "Our father is herding a lot of goats in the mountain" without any focus. The accentuated syllable of each of three phrases gets the greatest F0 maximum. The last of each phrase gets the lowest F0 minimum. Speaker A.

#### 5 Conclusions

The present investigation outlines some features of the use of pitch in Mongolian declarative utterances. According to the data each word tends to get a falling-rising gesture. It is the last syllable of the word that is accentuated. However an investigation of utterances with words with more than two syllables is needed to support this preliminary conclusion.

It is assumed that the level from which the F0 fall begins is important to signal the focused syllable. When focused, the syllable gets greater F0 maxima in relation to other accentuated syllables in the same utterance.

Phrasing is signalled by dominating F0 level for fall in the first word in the phrase and deeper F0 fall in the last word in the phrase.

All this allows the conclusion that in Mongolian the pitch is used to signal weight relations between words in the utterance and, on the other hand, phrasing.

#### References

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