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# Tonal gestures in Mongolian interrogatives

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The article summarizes a study of tonal courses in Mongolian yes-no and question word interrogatives. The investigation concerns local characteristics of utterances, namely focal and boundary signaling gestures. A phonological analysis of the gestures is proposed based on the acoustic data.

## 1. Background

### 1.1. Previous analysis. Declaratives

The present study is based on results of my previous investigation of rhythm and tonal courses in Mongolian declaratives. Focus in declaratives is signaled by a tonal peak that tends to get the greatest value in the utterance. The gesture is analyzed as a high tone (H).

Prosodic boundaries are signaled phrase initially by a high  $f_0$  peak, analyzed as a %H boundary tone. Phrase finally an L% boundary tone is identified. See Figure 1. Utterance internally the L% can be replaced by a high rising gesture, an optional H% final boundary tone.

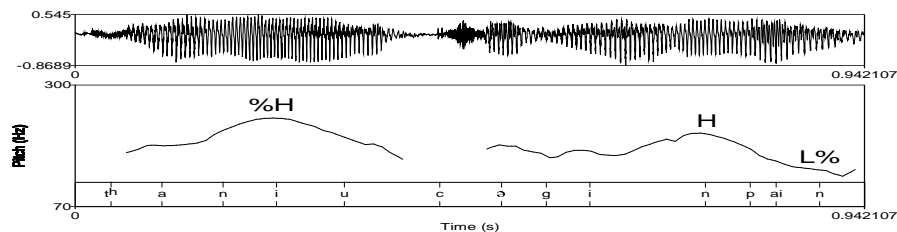
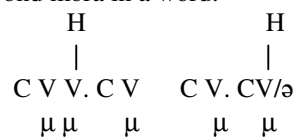


Figure 1. Declarative *t<sup>h</sup>ani ucæg in pain* “Your pen is this one” (SOV word order) with a narrow focus on *in* “this”. The first tonal peak is placed on the functional word *t<sup>h</sup>ani* “your” and functions as an initial boundary tone. Speaker E.

The earlier performed acoustic analysis of tonal courses indicates that there is no lexical stress in Mongolian. To describe the synchronization of the focal H with the segmental level I propose a mora analysis. Duration has a phonological function in Mongolian, and long vowels are counted as two morae, and short and epenthetic vowels as one mora. The focal gesture is placed on the second mora in a word:



### 1.2. Material and method

The investigation considers Halh Mongolian (see Svantesson this volume). Recordings of seven speakers, four men and three women, with 25 occurrences of yes-no (YNQ) and 37 question word interrogatives (QWQ) of different length were used. The material has been analyzed in the PRAAT program.  $F_0$  values have been measured manually in each syllable in three points: the vowel onset and offset and vowel medially.

### 1.3. Mongolian interrogatives. Grammatical remarks

Lexical markers are used to form both YNQs and QWQs in Mongolian (Sanžeev 1960). In YNQs an obligatory question particle  $-ʊʊ$  is placed utterance finally:

t<sup>h</sup>ir xarənta juʊ            “is that a pencil?”  
*that pencil quest. particle*

In QWQs a double lexical marking is used: beside the question word, the question particle *pee/wee* is placed finally, but is often omitted in colloquial speech. Mongolian is an SOV language, and the question word is not moved to the initial position in the sentence, as it is typical for the most Indo-European languages:

ʃire xaan pain wee            ”where is the table?”  
*table where is quest. particle*

## 2. Results

The focused word is signaled by the same gesture in both YN- and QWQs, and the two types of questions are therefore treated together here.

### 2.1. Signaling of focus

The focal accent is signaled by a tonal rise or by a high tonal peak depending on the structure of the word. If there is a long vowel or a diphthong in a word the gesture is synchronized with it and is realized as a rise, see Figure 4. The rise is also found in words with a vowel in absolute initial or absolute final position.

The gesture is not synchronized with the second mora in these structure types, as is the case for the focal H in declaratives.

If there are no structural conditions as described above, the gesture is realized as a high tonal peak. In this case the peak is placed on the second mora, and the previous vowel gets lower values. In such structures we find acoustically the same focal gesture as in declaratives, compare Figure 2 with Figure 3.

While the focal H in declaratives is not systematically realized as a rise, the focal gesture in interrogatives is a rise if the segmental conditions are satisfied. I analyze the gesture as LH.

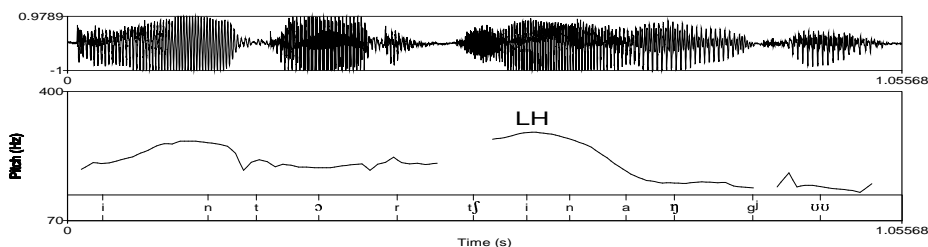


Figure 2. An interrogative *in tɔrtʃin aŋɣʊʊ* ‘Is this Dorj’s class?’ The focused word *tɔrtʃin* gets a high  $f_0$  peak synchronized with the second mora. Speaker E.

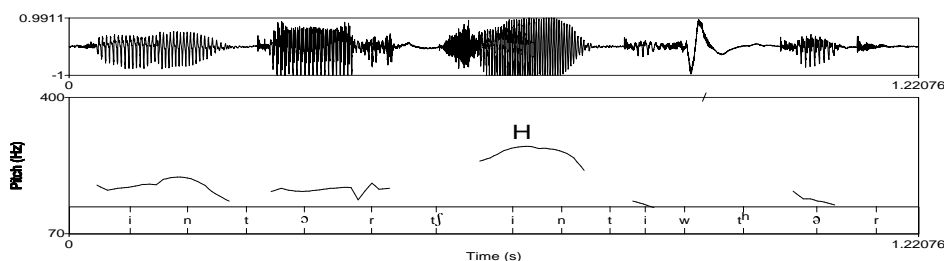


Figure 3. A declarative *in tɔrtʃin tiwɪʰər* ‘This is Dorj’s notebook.’ The focus on *tɔrtʃin* is signaled by an  $f_0$  peak synchronized with the second mora. Speaker E.

## 2.2. Signaling of boundaries

Two of the seven speakers have a systematic use of a final high tone, aligned with the question particle, see Figure 4. The gesture is used beside the focal LH in the same utterance and has a boundary signaling function, the previously described final H%. Otherwise the end of the utterance is signaled by low values, the L% boundary tone (see previous figures).

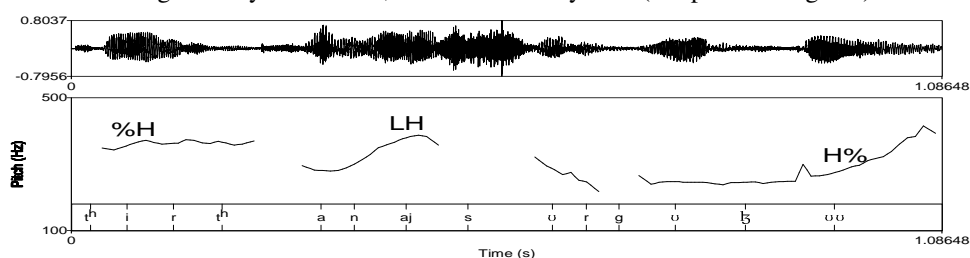


Figure 4. Interrogative *tʰir tʰanaj surɣʊʂʲ ʊʊ* ‘Is there your school?’ The focused word *tʰanaj* ‘your’ gets a LH. The end of the utterance is signaled by a rising boundary tone. Speaker T.

In the YNQs the final question particle  $-ʊʊ$  is cliticized to the previous word. When the last word is focused, the tonal gesture is moved to the particle if it gets the second mora position. In these cases the focal LH occurs utterance finally, and the boundary signaling H% is replaced by L% for all seven speakers. See Figures 5 and 6.

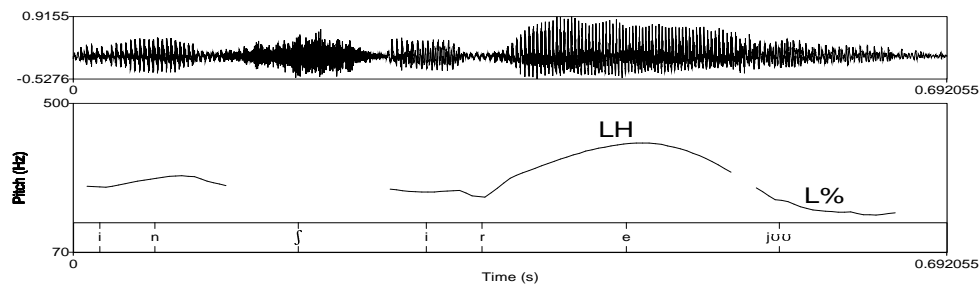


Figure 5. A YNQ in *fire juu* “Is this a table?” The focal gesture is synchronized with the second mora in *fire* “table”. The question particle *juu* gets low boundary tone L%. Speaker T.

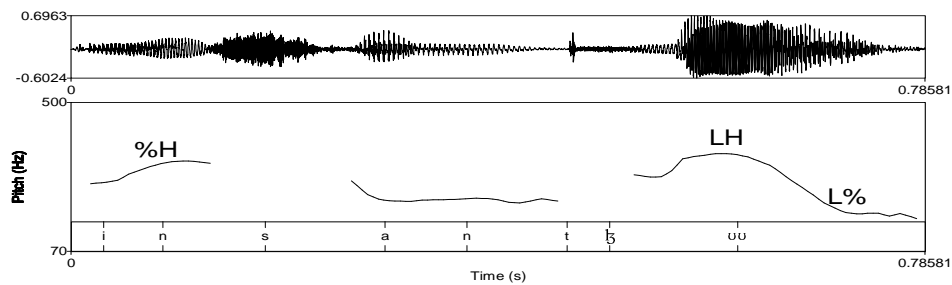


Figure 6. A YNQ in *santʃ uu* “Is this a chair?” The question particle *uu* is cliticized to the final focused word and gets a second mora position. Both the focal gesture LH and the boundary tone L% are synchronized with the particle. Speaker T.

### 3. Summary

Focus in questions is signaled by a rising gesture, the LH. However, depending on the segmental conditions, the gesture can be realized just as a tonal peak, synchronized with the second mora, making it similar to the focal H in declaratives. Interrogatives have a terminal low boundary tone, which is characteristic for most informants, while the high final rise is optional. All this makes the intonation of interrogatives similar to that of declaratives. The reason for this seems to be the strong formal signaling of interrogatives by using question particles. Thus, intonation has a redundant role in forming the interrogative mode in Mongolian.

### 4. References

Sanžeev G. D. (1960) *Sovremennyy mongol'skij jazyk*. Moskva: Izdatel'stvo vostočnoj literatury.