
AN ACOUSTICAL SIGNAL IN MANDARIN (CHINESE) QUESTIONS WITH INTERROGATIVES*

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There is a set of "bound words" and "free words" (Y. R. Chao, *Mandarin Primer*, Cambridge, 1948, p. 33) in Mandarin which we will call interrogatives. Some of the words are *shéi* (who/m), *shémma* (what), *něi-* (which), and *dzěmma* (how). These words have simultaneous semantic and grammatical functions. Each of these interrogatives distinguishes itself from the rest of the set by the lexical content it elicits. The response to an interrogative gives the lexical information requested. Grammatically the position of an interrogative in a supplement question and of its corresponding answer is the same.

If Mandarin does not seem to use word order to indicate interrogation in supplement questions, then does it do so by intonation?

Two factors determined the selection of materials used in the present effort to answer this question. First, questions with interrogatives should be those produced in conversations rather than those produced in isolation. The conversations used here were taken from Y. R. Chao's *Mandarin Primer*. Galaxy magnetic recordings of tapes of the conversations were made with Ampex 354 at 7 1/2 speed from the F. P. 80002 Folkways Records accompanying the text. Second, since significant intonation variations usually occur at the end of utterances, the data collected centered around interrogatives in final position.

Occurrences of interrogatives with tone-2 followed by tone-0, 20, were selected for two reasons. First, there were many occurrences of *shémma*, which has the tone pattern of 20. Second, it might be that since the *ma* in *shémma* has tone-0, the behavior of the harmonics of *ma* could be interpreted as that of intonation.

There were three kinds of final contours of the 10th harmonic observed: 1. a continuous rise; 2. a level after the rise; 3. a fall after the rise.

An examination of the context in which these three kinds of final contours occurred with questions with interrogatives showed five relations. (A) Repetition questions ended in a rise. (B) Repetition questions ended on a level. (C) Repetition questions

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ended in a fall. (D) Supplement questions ended on a level. (E) Supplement questions ended in a fall. (F) Previous research shows statements end in a fall. (Yao Shen, *English Phonetics*, Ann Arbor, Michigan, 1966, p. 254.).

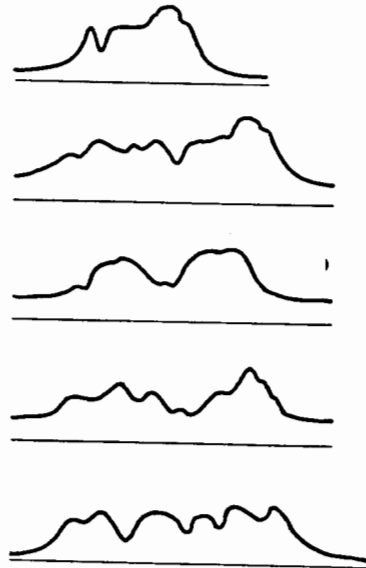


Fig. 1.

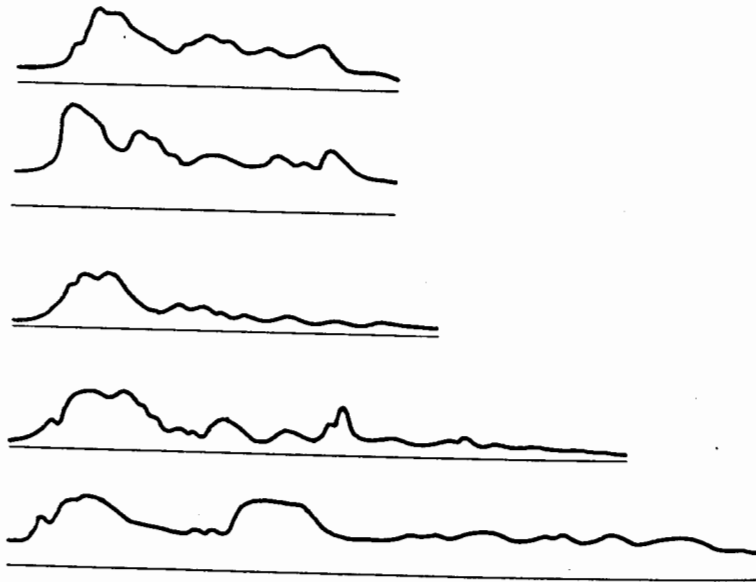


Fig. 2.

Interpretations of the data were made as follows.

One, statements (F) have the same final contour as questions with interrogatives (C) and (E). The request for a response distinguishes (C) and (E) from statements (F)

which do not request a response. The signal is lexical. Two, questions with interrogatives ending in a rise contour (A) are repetition questions. The signal is acoustical. Three, repetition questions and supplement questions have the same final contours. Examples are (B) vs (D) and (C) vs (E). What then is signalling the difference, since it is neither the lexicon nor the word order nor the final contour?

Patterns of amplitude-vs-time curves in the two kinds of questions seemed to show a reasonably consistent contrast.

First, in the repetition questions, the highest amplitude display coincides with the occurrence of the interrogative (Figure 1). Second, in the supplement questions, the highest amplitude display does not coincide with the interrogatives. It occurs somewhere else in the question (Figure 2). A tentative conclusion from this very limited data suggests an acoustical signal differentiating the two kinds of Mandarin questions with interrogatives. It is where the highest amplitude display is in the question.

DISCUSSION

Marquardt:

The data presented regarding Chinese questions is interesting. What are the implications of this data for the teaching of English to speakers of Mandarin Chinese or Chinese to speakers of English?

Shen:

ad Marquardt: Any detailed analysis which specifically describes a certain feature in a language is useful in language teaching. In this case, if this acoustical feature in Mandarin differs from what is used in similar English questions, when native speakers of Mandarin bring it into English, their English will sound Mandarin English. It also applies when native speakers of English learning Mandarin do not produce this feature, their Mandarin will sound non-Mandarin.