The theory and processing of Korean wh-indeterminates

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1. Research Question

How to distinguish WHQs from YNQs by prosody in Korean?

The so-called wh-indeterminate in Korean renders a question like (1) ambiguous between a yes/no-question and a wh-question.

(1) 지금 누구 기다리? who are you waiting for now?

The interpretation is affected by prosodic factors such as:

- Phonological phrasing after wh (Lee 1990, Jun & Oh 1996, Yun 2012)
- Sentence boundary tone (Martin 1951, Lee 1984, Hwang 2007)

Among these factors, phonological phrasing has been argued to be the strongest cue to disambiguation (Jun & Oh 1996, Yun 2012).

2. Theoretical prediction

WHQs and YNQs are distinguished by different phonological phrasing (Jun 1993).

When it is WHQ, there is no phrase boundary between the wh-indeterminate and the following word.

Different phrasing is generally realized with different tonal represenations (Jun & Oh 1996).

The typical tonal pattern of a phonological phrase. The second and penultimate tones can be deleted if the phrase consists of fewer than 4 syllables.

YNQs and WHQs are realized with different tonal patterns in general (solid vertical line: phrase boundary, shaded area: wh-word).

3. When the theory is indecisive

In certain cases, the theory predicts the same tonal patterns for both WHQ and YNQ.

For example, the same LHLH pattern is predicted for a disyllabic wh-indeterminate followed by a disyllabic word.

Thus, one might argue that in those cases the other prosodic factors such as relative prominence of wh-words or sentence boundary tone (that overrides the final AP tone) would instead play a decisive role in disambiguation.

In this study, however, we have found that the phrasing difference in terms of tonal pattern is still present and effective in such a case.

4. Production

The phrasing difference in terms of tonal pattern maintains even when the theory predicts an exception.

We analyzed the production of 160 sentences like the following (9 speakers x 10 sentences x 2 contexts) --

(2) 내일 누구 만나? who are you meeting tomorrow?

YNQ: ‘Are you meeting someone tomorrow?’

WHQ: ‘Who are you meeting tomorrow?’

-- to find three major factors that differentiate YNQs and WHQs:

- F0 peak on the wh-word: WHQs showed a significantly higher F0 peak on the wh-indeterminate compared to YNQs (paired t-test: t(7,1) = 88, p < .001)
- Post-wh L tone: an L tone was realized on the initial syllable of the post-wh-word in 90% of YNQs, but only 26% of WHQs.
- Sentence boundary tone: WHQs were mostly realized with an LH% at the end (68%), while YNQs were mostly with H% (78%).

The absence of the post-wh L tone in WHQ is an additional factor which is not predicted by the theory, but it is a consistent pattern for WHQ (see 3 in discussion).

5. Perception

The attested tonal contrast has influence on perception.

We conducted a perception test (N=57) with one speaker’s recording. Each sentence was resynthesized to manipulate the values of selected acoustic factors among the three: wh-peak (not boosted/boosted) x post-wh L (presence/absence) x sentence boundary tone (H%/LH%).

The non-manipulated intonation was correctly identified for both readings (more than 90%).

- There was a baseline preference for WHQ.
- Deleting the post-wh L tone in YNQ increased WHQ responses.

6. Discussion & Conclusion

The phrasing difference in terms of tonal contrast is still present and effective even when the theory predicts an exception.

This may be a processing strategy that enhances the phrasing contrast between YNQs and WHQs, i.e. presence versus absence of the post-wh L tone (3). The finding of this study also reinforces the argument that appropriate phonological phrasing is cross-linguistically important in forming and understanding wh-questions (Hu 2002, Ishihara 2002, Richards 2010).

7. Selected References


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