# Sentence-final intonation in Korean

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# Data: ambiguity

- Korean sentences are often highly ambiguous.
  - E.g. 내일 누구 만날 거야
    1. I'm going to meet someone tomorrow.
    2. Are you going to meet anyone tomorrow?
    3. Who are you going to meet tomorrow?
- The following factors contribute to ambiguity:
  - Indeterminates (누구/무엇/어디/언제..)
  - *Pro*-drop
  - Neutral sentence ending

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# Prosodic disambiguation

- However, Korean speakers can easily tell the meaning even without context when they listen to the sentence.
  - E.g. 내일 누구 만날 거야
    1. I'm going to meet someone tomorrow.
    2. Are you going to meet someone tomorrow?
    3. Who are you going to meet tomorrow?
- This is because of the distinctive prosody of each meaning.
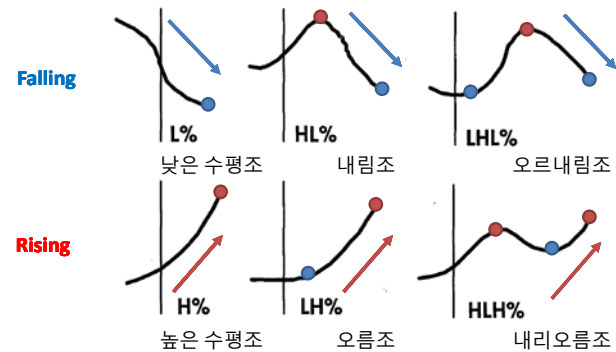
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# Research question

- What prosodic factors characterize different meanings? (see Yun & Lee (in press) for a review)
  - prosody of the indeterminate words
    - prominence of the *wh*-words
  - prosody of the entire sentence
    - phonological phrasing
  - prosody at the end of the sentence ← **Today's topic**
    - sentence-final intonation

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## Slide 5

# Sentence-final intonation



Falling

L%
낮은 수평조

HL%
내림조

LHL%
오르내림조

Rising

H%
높은 수평조

LH%
오름조

HLH%
내리오름조

- Vertical line: beginning of the sentence-final syllable

Figure: based on Jun 2005, Korean description: 이호영 2015

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## Slide 6

# Previous arguments on sentence-final intonation

## Slide 7

# Previous Argument (1)

- Declaratives: Falling

- Yes-no questions: Rising

- Wh-questions: Falling

Martin 1951, 이기문 외 1984,
Suh 1989, 허웅 1991,
이익섭 & Ramsey 2000, 권재일 2002

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## Slide 8

# Previous Argument (2)

- Declaratives: L%

- Yes-no questions: H%

- Wh-questions: LH%

Jun & Oh 1996, Jun 2005

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## Previous Argument (3)

- Yes-no questions: H%
- Wh-questions: HL%

H.-J. Hwang 2007

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## Previous Argument (4)

- Yes-no questions: H%, LH%, HL%, ML%
- Others: L%, ML%, LHL%, M%, LM%, HLH%

H.-Y. Lee 1997, 2015
(M: Middle tone)

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## Interim Summary

- Different descriptions of sentence-final intonation

| | (1) Many researchers | (2) Jun&Oh | (3) Hwang | (4) Lee | |
|---|---|---|---|---|---|
| DCL | Fall | L% | | | |
| YNQ | Rise | H% | H% | H%, LH%, HL%, ML% | |
| WHQ | Fall | LH% | HL% | L%, ML%, LHL%, M%, LM%, HLH% | ← Why so diverging? |

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## Questions

- Why are there different observations on the association between sentence-final intonation and sentence types?
  - Conflicting descriptions for WHQ: (1),(3) vs. (2)
  - Inclusive description for WHQ: (4)
- Is sentence-final intonation a reliable cue to sentence types at all?

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# New observations on sentence-final intonation

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# New Observation

- Different **sentence-final ending forms** associate with different sentence-final tones.
- Classification of sentence-final ending forms:
  1. Neutral endings: -어/아, -요
  2. Interrogative endings: -니, -까
  3. Confirmative endings: -지

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# New Observation

- An impressionistic observation on the association between sentence type and intonation modulo **sentence ending**:

|  | 1. -어/아 | 2. -니 | 3. -지 |
|---|---|---|---|
| Declarative (DCL) | L% |  | L% |
| Yes-no question (YNQ) | H% | H% | HL% |
| *Wh*-question (WHQ) | LH% | HL% | H% |

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# 1. Neutral Ending -어/아

- DCL
  - A: 전화 좀 받아줄래?
  - B: 잠깐만. 나 지금 뭐 먹어.

- YNQ
  - A: 너 지금 뭐 먹어?
  - B: 아니.

|  | -어/아 | -니 | -지 |
|---|---|---|---|
| DCL | L% |  | L% |
| YNQ | H% | H% | HL% |
| WHQ | LH% | HL% | H% |

- WHQ
  - A: 너 지금 뭐 먹어?
  - B: 사과 먹어.

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## 2. Interrogative Ending -니

- YNQ
  - A: 너 지금 뭐 보니?
  - B: 응.

- WHQ
  - A: 너 지금 뭐 보니?
  - B: 만화책.

|  | -어/아 | -니 | -지 |
|---|---|---|---|
| DCL | L% |  | L% |
| YNQ | H% | H% | HL% |
| WHQ | LH% | HL% | H% |

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## 3. Confirmative Ending -지

- DCL
  - A: 점심 먹고 와야겠다. 너도 같이 갈래?
  - B: 난 아까 뭐 먹었지.

- YNQ
  - A: 너 아까 뭐 먹었지?
  - B: 응.

- WHQ
  - A: 너 아까 뭐 먹었지?
  - B: 짜장면.

|  | -어/아 | -니 | -지 |
|---|---|---|---|
| DCL | L% |  | L% |
| YNQ | H% | H% | HL% |
| WHQ | LH% | HL% | H% |

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## Production Test

- Materials
  - 8 combinations of
    - sentence endings (-어/아, -니, -지)
    - sentence types (DCL, YNQ, WHQ)
  - 12 sentences for each combination
- Participants
  - 40 Seoul Korean speakers (20 M, 20 F)
- Procedure
  - Read the target sentence and its context silently
  - Read out the target sentence

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## Results 1: -어/아

|  | L% | H% | LH% | HL% | LHL% | Total |
|---|---|---|---|---|---|---|
| DCL | 449 | 0 | 4 | 3 | 24 | 480 |
|  | **93.5%** | 0.0% | 0.8% | 0.6% | 5.0% |  |
| YNQ | 0 | 438 | 42 | 0 | 0 | 480 |
|  | 0.0% | **91.3%** | 8.8% | 0.0% | 0.0% |  |
| WHQ | 7 | 38 | 434 | 1 | 0 | 480 |
|  | 1.5% | 7.9% | **90.4%** | 0.2% | 0.0% |  |

- For the neutral ending -어/아, sentence-final intonation was closely associated with the type of the sentence.

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## Results 2: -니

| | L% | H% | LH% | HL% | LHL% | Total |
|---|---|---|---|---|---|---|
| YNQ | 2 | **436** | 40 | 2 | 0 | 480 |
| | 0.4% | **90.8%** | 8.3% | 0.4% | 0.0% | |
| WHQ | 17 | 31 | 179 | 250 | 3 | 480 |
| | 3.5% | 6.5% | 37.3% | **52.1%** | 0.6% | |

- For the question ending -니, YNQ was clearly characterized by H%. WHQ was mostly realized with HL%, but also quite frequently with LH%.

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## Results 3: -지

| | L% | H% | LH% | HL% | LHL% | HLH% | HLHL% | Total |
|---|---|---|---|---|---|---|---|---|
| DCL | 302 | 4 | 18 | 4 | 150 | 1 | 1 | 480 |
| | **62.9%** | 0.8% | 3.8% | 0.8% | **31.3%** | 0.2% | 0.2% | |
| YNQ | 149 | 111 | 3 | 217 | 0 | 0 | 0 | 480 |
| | 31.0% | 23.1% | 0.6% | **45.2%** | 0.0% | 0.0% | 0.0% | |
| WHQ | 5 | 326 | 145 | 4 | 0 | 0 | 0 | 480 |
| | 1.0% | **67.9%** | 30.2% | 0.8% | 0.0% | 0.0% | 0.0% | |

- For the confirmative ending -지, the association between sentence-final intonation and sentence type was loose.

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# Discussions & Conclusion

## A hidden factor: sentence ending

- Experimental results

| | 1. -어/아 | 2. -니 | 3. -지 |
|---|---|---|---|
| Declarative (DCL) | L% | | L% |
| Yes-no question (YNQ) | H% | H% | HL% |
| *Wh*-question (WHQ) | LH% | HL% | H% |

- Previous arguments

| | Many | Jun.Oh | Hwang | Lee |
|---|---|---|---|---|
| DCL | Fall | L% | | L%, ML%, LHL%, M%, LM%, HLH% |
| YNQ | Rise | H% | H% | H%, LH%, HL%, ML% |
| WHQ | Fall | LH% | HL% | L%, ML%, LHL%, M%, LM%, HLH% |

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# Conclusion 1

- The associations between sentence types and sentence-final tones differ depending on **the sentence-ending form**.
  - This explains the apparent discrepancies in the previous arguments on the relation of sentence types and sentence-final tones.

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# Power of sentence ending

- Percentage of the typical intonation

|  | 1. -어/아 | 2. -니 | 3. -지 |
|---|---|---|---|
| Declarative (DCL) | L% (93.5%) |  | L% (62.9%) |
| Yes-no question (YNQ) | H% (91.3%) | H% (90.8%) | HL% (45.2%) |
| *Wh*-question (WHQ) | LH% (90.4%) | HL% (52.1%) | H% (67.9%) |

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# Conclusion 2

- The association between sentence types and sentence-final tones is clearer for the **neutral endings** than for the question endings.
  - Neutral endings cause more ambiguity about sentence types, thus additional cues (such as intonation) would be desirable.
  - Neutral endings are more frequently used than explicit question endings to make questions in contemporary Korean (Kwon 2002), which also explains the increased role of intonation.

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# Conclusion 3

- **[+wh] feature** is not correlated with a specific sentence-final tone (cf. Hwang 2007).

|  | 1. -어/아 | 2. -니 | 3. -지 |
|---|---|---|---|
| Declarative (DCL) | L% |  | L% |
| Yes-no question (YNQ) | H% | H% | HL% |
| *Wh*-question (WHQ) | LH% | HL% | H% |

- *Wh*-questions are distinguished from yes-no questions mainly by post-*wh* dephrasing (Jun & Oh 1996, Yun 2013).

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