Verb-movement and grammar competition in Korean:
Evidence from negation and quantifier scope

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Setting the Stage

- The general form of poverty of the stimulus arguments:
  1) two hypotheses: Hypothesis A vs. Hypothesis B
  2) both are consistent with input data
  3) everyone acquires Hypothesis B

\[\Rightarrow\text{only Hypothesis B is part of innate hypothesis space}\]

- Our argument:
  1) two hypotheses: Hypothesis A (V-to-I) vs. Hypothesis B (no V-to-I)
  2) both are consistent with input data (in Korean)
  3) we know independently that both are part of innate hypothesis space

\[\Rightarrow\text{some learners acquire Hypothesis A and some acquire Hypothesis B}\]
Main Points

- The lack of input data to distinguish a verb-raising from a non-verb-raising grammar in head-final languages can lead to multiple grammars in a single speech community.

- Interactions between negation and quantificational arguments give linguists a way to test for verb-raising, though such data is not obviously available to a learner.

- There are two coexisting grammars of the Korean inflectional system: Korean is not one language but two.
Organization of the Talk

- Background evidence for verb movement
- Motivating scope facts of negation and argument QPs as evidence for verb movement in Korean
- Conflicting claims in the literature
- Extracting scope judgments using rich contexts in simple method from both adults and 4 year-old children
- Implications for the grammar
Evidence for Verb Movement: Adverb Placement

Verb placement in English vs. French has been used to argue for differences in movement of V to Infl:

(1) English
   a. John often kisses Mary.         (S Adv V O)
   b. * John kisses often Mary.      (*S V Adv O)

(2) French
   a. * Jean souvant embrasse Marie. (*S Adv V O)
   b. Jean embrasse souvant Marie.   (S V Adv O)
Traditional Analysis (Emonds 1978, Pollock 1989)

French V raises to I; English I lowers to V.

French

\[
\begin{array}{c}
\text{IP} \\
\text{NP} \\
\text{I’} \\
\text{I} \\
\quad [+\text{tns}] \\
\quad [+\text{agr}] \\
\quad \text{Adv} \\
\quad \text{VP} \\
\quad \text{V} \\
\quad \text{Obj} \\
\end{array}
\]

English

\[
\begin{array}{c}
\text{IP} \\
\text{NP} \\
\text{I’} \\
\text{I} \\
\quad [+\text{tns}] \\
\quad [+\text{agr}] \\
\quad \text{Adv} \\
\quad \text{VP} \\
\quad \text{V} \\
\quad \text{Obj} \\
\end{array}
\]
Adverb Placement in Head-final Language

In a head-final language with specifiers/adjuncts on the left, these two derivations would yield the same word-order:

```
  IP
   /  \
   NP   I'
     /    \
    VP    I
   /      /  \n  Adv  VP  NP
       /    /  \n      V   Obj Subj
```

Question: How can you tell whether there’s verb-raising or Infl-lowering in a head-final language?

Could negation be informative?
So if you have *do*-support in a head-final language, then there’s no V-raising:

(3) Korean long negation:

Toli-ka   ttena-ci **ani** ha-yess-ta.
Toli-NOM leave-CI NEG do-PST-DECL

‘Toli didn’t leave.’
Korean Short Negation

• But what if negation is on the left of the verb?

(4) Korean short negation:

Toli-ka  an  ttena-ss-ta.
Toli-NOM NEG leave-PST-DECL
‘Toli didn’t leave.’

• Is this V-raising like French? Or, could negation be a specifier/adjunct?

(a) (b)
Korean Short Negation (Cont.)

• If (a) is the right structure, then we still don’t know whether there’s V-raising.

• Reason to believe that short negation is in position distinct from long negation:

   (5) Toli-ka maykcwu-lul an masi-ci ani ha-yess-ta
       Toli-NOM beer-ACC NEG drink-CI NEG do-PST-DECL
       ‘Toli didn’t not drink beer.’ (Toli drank beer)

• Plan: Explore scope interaction with Neg and Object QPs to determine the height of V.

   Why? (i) Frozen scope; (ii) Object raising; (iii) Neg-cliticization.
Frozen Scope


(6) Nwukwunka-ka manhun salam-ul piphanhay-ss-ta.
someone-NOM many person-ACC criticize-PST-DECL
‘Someone criticized many people.’
(some > many, * many > some)
Object Raising

The object must occur to the left of (i.e. higher than) VP adverbs:

(Hagstrom 1998)

(7) a. Toli-ka maykcwu-lul cal masi-n-ta. (S O Adv V)
    Toli-NOM beer-ACC well drink-PRES-DECL
    ‘Toli drinks beer well.’

b. * Toli-ka cal maykcwu-lul masi-n-ta. (*S Adv O V)
    Toli-NOM well beer-ACC drink-PRES-DECL
    ‘Toli drinks beer well.’
Neg-cliticization

Nothing can occur between short neg and the verb:

(8) a. Toli-ka maykcwu-lul an masi-n-ta. (S O Neg V)
    Toli-NOM beer-ACC NEG drink-PRES-DECL
    ‘Toli doesn’t drink beer.’

    b. * Toli-ka an maykcwu-lul masi-n-ta. (*S Neg O V)
    Toli-NOM NEG beer-ACC drink-PRES-sc decl
    ‘Toli doesn’t drink beer.’

(9) a. Toli-ka maykcwu-lul cal an mas-in-ta. (S O Adv Neg V)
    Toli-NOM beer-ACC well NEG drink-PRES-DECL
    ‘Toli doesn’t drink beer well.’

    Toli-NOM beer-ACC NEG well drink-PRES-DECL
    ‘Toli doesn’t drink beer well.’
Neg-cliticization (Cont.)

Children (2 to 3 years old) sometimes fail to put together short negation and the verb.

(Hahn 1981; Cho & Hong 1988; Kim 1997; Baek 1998; Hagstrom 2002)

(10) a. Na an pap mek-e.
   I NEG rice eat-DECL
   ‘I do not eat rice.’ (Cho & Hong 1998:32 [2;2-6])

   b. An mak uw1-e.
      NEG much cry-DECL
      ‘(I) do not cry much.’ (Cho & Hong 1998:35 [2;2-6])

This is a failure to cliticize short negation onto the verb. (Han & Park 1994)
Putting the 3 Background Facts Together

- Given scope freezing, the scope of argument QPs will be determined in their surface position without recourse to QR or reconstruction.

- This implies that the scope of negation and argument QPs will be determined by the position of negation in the clause structure.

- Given object raising and Neg-cliticization, the availability of Neg > objectQP reading will be evidence for verb-raising.
Predictions

a. Subject QPs will scope over NEG, independent of negation type.
b. In short negation
   i) if there is V-raising, then NEG+V will occur in IP and so NEG will take 
      scope over object QPs;
   ii) if there is no V-raising, then NEG+V will occur inside VP and object QPs 
      will scope over NEG.

The predictions are clear. The facts are not.
Claims in the Literature: Subject oriented adverbial QP

(11) a. Ta an o-ass-ta.
   all NEG come-PST-DECL
   ‘All didn’t come.’

b. Ta o-ci anı ha-yess-ta.
   all come-CI NEG do-PST-DECL
   ‘All didn’t come.’

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Claims in the Literature: Object oriented adverbial QP

\[(12) \quad \begin{align*}
a. \ & \text{John-i sakwa-lul twu kay an mek-ess-ta.} \\
& \text{John-NOM apple-ACC two piece Neg eat-PST-DECL} \\
& \text{‘John did not eat two apples.’}
\end{align*}
\]
\[b. \ & \text{John-i sakwa-lul twu kay mek-ci ani ha-yess-ta.} \\
& \text{John-NOM apple-ACC two piece eat-CI NEG do-PST-DECL} \\
& \text{‘John did not eat two apples.’}
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Claims in the Literature: Universal QP in object position

(13) Universal quantifier in object position

   John-NOM every book-ACC NEG read-PST-DECL
   ‘John didn’t read every book.’

   John-NOM every book-ACC read NEG do-PST-DECL
   ‘John didn’t read every book.’

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<td>Yes          Yes</td>
<td>Yes                   Yes</td>
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### Claims in the Literature: Universal QP in subject position

(14) Universal quantifier in subject position

   every person-NOM here-to NEG come-PST-DECL
   ‘Everyone didn’t come here.’

b. Motun salam-i yeki-e o-ci ani ha-yess-ta.
   every person-NOM here-to come-CI NEG do-PST-DECL
   ‘Everyone didn’t come here.’

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Interim Conclusion and Mystery

- Interim conclusion: We can’t follow the line of reasoning set up above because nobody knows what the facts are.

- The interim mystery: Why can’t Korean linguists agree on the scope facts?

- Is the mystery due to methodology or to grammar?
  
  Use rich contexts in simple method
Truth-value Judgment Task

Stories are acted out in front of subjects with toys. At the end of the story a puppet makes a statement about the story and the subjects’ job is to say whether the puppet understood the story:

Advantages:

- discourse context provided
- participants in story part of visual scene
- possible outcomes part of story (plausible dissent)
- no memory load
- shown to work in several languages (Lidz and Musolino 2002)
- shown to work w/4-year-olds (Crain and McKee 1985, Crain and Thornton 1998, Lidz and Musolino 2002)
Experiment (Adults)

2x2x2 design: Negation type x QP position x Scope
(short vs. long) (subj. vs. obj.) x (neg > ∀ vs. ∀ > neg)

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<td>Object QP</td>
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<tr>
<td></td>
<td>∀ &gt; neg</td>
<td>n=20</td>
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Procedure:
subjects introduced to the task
2 practice trials
4 test trials w/4 fillers (in pseudorandom order)
Test Sentences

(15) Subject QPs
   every horse-NOM fence-ACC jump.over-CI NEG do-PST-DECL
   ‘Every horse didnt jump over the fence.’ (long negation)
b. Motun mal-i wultali-lul an num-ess-ta.
   every horse-NOM fence-ACC NEG jump.over-PST-DECL
   ‘Every horse didnt jump over the fence.’ (short negation)

(16) Object QPs
   cookie monster-NOM every cookie-ACC eat-CI NEG do-PST-DECL
   ‘Cookie monster didnt eat every cookie.’ (long negation)
   cookie monster-NOM every cookie-ACC NEG eat-PST-DECL
   ‘Cookie monster didnt eat every cookie.’ (short negation)

In the neg$\forall$ conditions, two out of three horses jumped/cookies were eaten. In the $\forall$neg conditions, none of horses jumped/cookies were eaten.
Example Scenario

Context:
One day three horses were playing in the field and they decided to jump over some stuff. There was a house and a fence in the yard. They decided that the house was too high to jump over and so they decided to try jumping over the fence. Two of them were very excited about jumping over the fence but the third wasn’t sure whether he could. The first one jumped over the fence. Hey, that was fun, he said. You try it. Then the second horse also jumped over the fence. The third one came up to fence and considered jumping but he said that he had hurt his foot the day before and so decided not to jump.

Puppet statement:
“Hmm. That was an interesting story about horses playing in the field. I can tell you something about the story. Every horse didn’t jump over the fence. Am I right?”
If subjects reject the sentence in this context, it must be because the grammar does not generate the neg $\forall$ interpretation.
Results (Adults)

Percentage acceptance:

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<td>$\forall$ &gt; neg</td>
<td>98</td>
<td>98</td>
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Figure 1: Subject condition

Figure 2: Object condition
Results (Adults) (Cont.)

Main effect of: **Scope** (\(\forall >\text{neg}\) accepted more than \(\text{neg} > \forall\)) (\(p < .0001\))

**Grammatical Function** (more acceptances in object conditions than subject conditions) (\(p < .0008\))

Interaction: **Scope x Grammatical function** (\(\text{neg} > \forall\) more likely to be accepted for objects than subjects) (\(p < .0003\))

Important observation: bimodal distribution of acceptances of \(\text{neg} > \forall\)

![Figure 3](image.png)

**Figure 3**: # of subjects accepting \(\text{neg} > \forall\)

**Conclusion**: Even with the enriched contexts, the literature is right. Only about half the people allow negation to scope over an object QP.
Analysis

Half of the population has acquired a Verb-raising grammar and half of the population has acquired an Infl-lowering grammar.

**Grammar A:** Infl lowers to V; Short neg cliticizes to V; Object scopes over short neg.

**Grammar B:** Short neg cliticizes to V; V raises to Infl; Short neg scopes over object.
Experiment (Children)

- The two grammar hypothesis predicts that we will find the same split in the population among learners of Korean.

- 4 year-old children were tested on object conditions.

2x2 design: Negation type x Scope (short vs. long) x (neg>∀ vs. ∀>neg)

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Results (Children)

Percentage Acceptance:

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<td>∀&gt;neg</td>
<td>82</td>
<td>87</td>
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Figure 2: Adults

Figure 4: Children
Main Conclusions

- There are two grammars of Korean coexisting within a single population. Some speakers have V-to-I movement; others have Infl-lowering to V.

- This situation is a consequence of the difficulty of detecting V-raising in the ambient language.

- Under our approach, the disagreement on scope judgments in the literature and among speakers are not attributed to noise in the data, but rather is a real fact that receives an explanation.

- Even given the restricted hypothesis space determined by UG, insufficient input can lead to distinct grammars in a single population.