Contrastive focus and referential processing in Korean versus English

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Reference resolution is fundamental to discourse processing

\[\text{John}_{\text{Source}} \text{ handed a book to } \text{Bob}_{\text{Goal}}. \quad \text{He}...\]

\[\ldots\text{really wanted Bob to have it.}\]

\[\text{He} = \text{John} \quad (\text{Source continuation})\]

\[\ldots\text{took it and read it right away.}\]

\[\text{He} = \text{Bob} \quad (\text{Goal continuation})\]
... and is sensitive to many factors

• Surface-level cues
  – Subjecthood, first mention, recency, syntactic parallelism, referential form, first fixated

• Information structure (topic; contrastive focus)
  • Katie called Victoria and then SHE...

• Coherence relations
  • K called V. She had a question to ask her. (explanation)
  • K called V. She picked up the phone. (occasion)

• Event structure: e.g., on-going vs. completed
  • Ongoing -> likely to elaborate on or explain the event.
  • Completed -> likely to discuss what happened next or the result
These factors are often said to affect "salience" (prominence, accessibility, activation, etc)

• In psycholinguistic research, we assume that listeners/readers construct a discourse model,
• and incrementally update it as the linguistic material unfolds,
• resulting in gradient shifts in the salience (accessibility, etc) of discourse entities,
• which in turn affects their probability for being mentioned next in the discourse.
Salience and contrastive intonation

• One means of imposing salience on an entity is by mentioning it with contrastive intonation.

• Contrastive intonation is known to direct processing attention toward the focused material, and enhance its representation in memory.

• How does it affect referential patterns? (How) do its effects differ across languages?
Coreference and intonation

• Rich, understudied area - even for data from native speakers of English.
• Cross-linguistic comparisons could expand our understanding of prosodic systems, and of how information structure affects reference.
• Important for basic and applied questions in second language acquisition research.
• Should be controlled / can be explored with online measures such as eye tracking.
Plan for this talk

• Present baseline data on referential processing for English and Korean,
• then examine effects of contrastive intonation in English (for native speakers and learners)...
• versus effects of contrastive intonation and the –*nun* marker in Korean (for native speakers of Korean).
Experiments
Task throughout experiments in today’s talk: Written or aural story continuation

• Participants are given the beginning of a story.
• They type continuations.
• Two independent annotators code the continuations for:
  – Referent of the syntactic subject (e.g., Source, Goal)
  – Referential expression (e.g., pronoun, name) used for subject
  – Coherence relation (e.g., explanation, result)

Patrick_{Source} gave a towel to Ron_{Goal}. ________________________________

He thought Ron looked cold and would like it. (Source; PRONOUN; EXPLANATION )

Ron took it and dried off. (Goal, NAME, RESULT)
The story always starts with the **Source** argument as syntactic subject

- For our critical stimuli, the story always began with a phrase which was:
  - The **syntactic subject**, and
  - the **Source** of the transfer event, and
  - the most likely **topic** of the sentence/discourse.
  - In Korean, it was marked with either –*i/ka* (-Nom) or –*(n)un* (-Top) (described further below).

\[
\begin{align*}
\text{John}_{\text{Source}} & \text{ handed a book}_{\text{Theme}} \text{ to Bob}_{\text{Goal}}. \\
\text{Chelswu-ka/nun}_{\text{Source}} & \text{ Yengswu-eykey}_{\text{Goal}} \text{ chayk-ul}_{\text{Theme}} \text{ kenneycwuessta} & \text{ (Korean)}
\end{align*}
\]
Exps. 1 & 2 – Background Exps.

Grüter, Rohde & Schafer (2014; under review)
Kim, Grüter & Schafer (2013; in prep)

pdfs at http://www2.hawaii.edu/~aschafer/
Exps. 1 & 2: Effects of event structure and referential expression

- **Exp1: English**
  (tested on native (L1) and non-native (L2) speakers)
  Following Rohde et al 2006 & Kehler et al 2008 on English

- **Exp2: Korean**
  Following Ueno & Kehler 2010 on Japanese

- **Two factors:** Event structure
  Prompt type
Factor 1: Event structure (perfective vs. imperfective aspect)

**Perfective**: Completed transfer event → attention to endstate

John<sub>Source</sub> handed a book<sub>Theme</sub> to Bob<sub>Goal</sub>.  
(English)

Chelswu-ka<sub>Source</sub>, Yengswu-eykey<sub>Goal</sub> chayk-ul<sub>Theme</sub> book<sub>Theme</sub> kenneycwuessta handed  
(Korean)

**Imperfective**: Ongoing transfer event → attention to event as a whole

John<sub>Source</sub> was handing a book<sub>Theme</sub> to Bob<sub>Goal</sub>.  
(English)

C.-ka<sub>Source</sub> Y.-eykey<sub>Goal</sub> chayk-ul<sub>Theme</sub> book<sub>Theme</sub> kenneycwukoissessta was handing  
(Korean)
Predictions of event structure

**Perfective:**

*John handed a book to Bob. He ...took it and read it right away.*

-> More attention to the **endstate**, and so more **Goal** reference for the continuation subject (than in the imperfective condition).

(He = Bob)

**Imperfective:**

*John was handing a book to Bob. He ...wanted him to read it.*

-> More attention to the **event as whole**, and so more **Source** reference for the contin. subject (than in the perfective condition).

(He = John)
Factor 2: Prompt type

- Reduced forms for salient referent (e.g., topic) (Gundel et al 1993)

**Null Pronoun:**

Chelswu-ka_{Source} ... Yengswu-eykey_{Goal} \(\emptyset \quad \) (Korean)

**Overt Pronoun:**

John_{Source} ... Bob_{Goal}.

He \(\quad \) (English)

Chelswu-ka_{Source} ... Yengswu-eykey_{Goal}

Ku-nun \(\quad \) (Korean)

He-TOP

**Free prompt:**

John_{Source} ... Bob_{Goal}.

____ \(\quad \) (English)

Chelswu-ka_{Source} ... Yengswu-eykey_{Goal}

Cayu \(\quad \) (Korean)

Free
Predictions of prompt type

• Transfer verbs have a general bias for Goal-oriented continuations.

• With free prompts, Goal-reference will be favored. Names will be used to support the topic shift.

• With pronoun prompts, subject/topic reference will increase, and thus Source reference will be favored. (Applies to both null and overt pronouns in Korean; ask during the Q period.)
Results - Prop. of Source reference: Korean (left) and English (right)

- Significant effect of prompt in all groups: More Source ref. with reduced forms.
- Sig. effect of event structure (aspect) for native Korean and native English.
- Similar patterns for native Korean and native English.
Exps. 1 & 2: Summary

• Similar effects in L1 English and L1 Korean for event structure and referential form.
• But the two languages have multiple differences in how they encode information structure. How will these differences affect reference?
  ➢ Explore topic-focus manipulations
  ➢ Test contrastive prosody
Exp. 3: Spoken English, L1 & L2

Schafer, Rohde & Grüter (in progress);
Schafer, Takeda, Camp, Rohde & Grüter (2015)

pdfs at http://www2.hawaii.edu/~aschafer/
Critical factor: Contrastive prosody on Source vs. Goal

Source Focus:
BRENDA fed Anne a bowl of soup. She ___

Goal Focus:
Brenda fed ANNE a bowl of soup. She ___

• Additional factors: event structure (*fed/was feeding*), native (L1) vs. non-native (L2)
Two hypotheses

• Two factors are known to be important for processing coreference, and for processing prosodic information:
  • Salience: “Simple Salience”
    – Refer to salient entities
  • Parallelism: “Topic Continuity”
    – Refer to parallel entities
Simple salience

• A contrastively focused entity has greater salience (vs. a neutral one) at one or more levels of representation (e.g., phonetic, discourse). **Prosodic contrast -> discourse salience**

• When a pronoun is encountered, reference is drawn to more salient entities.
  - More *Source* reference with *Source* focus.
  - More *Goal* reference with *Goal* focus.
Topic continuity

• Contrastive prosody shapes the info. structure by highlighting a contrast between the focused entity (e.g., the original Source) and an alternative (AltSource).

• If reference is kept parallel w.r.t. the information structure:
  – Contr. prosody on the preceding Source highlights a contrastive topic. Continuation topics should favor reference to the OrigSource or an AltSource.
  – Contr. prosody on the Goal highlights the OrigGoal/AltGoals as the focus; the Source is the topic. Continuation topics should favor continued (parallel) reference to the OrigSource.

  ➢ More Source ref. with Source focus and with Goal focus.
Simple salience vs. Topic continuity

• **Simple salience:**
  
  JOHН handed Bob a book. \( \text{He}_{\text{John}} \) ...  
  John handed \( \text{BOB} \) a book. \( \text{He}_{\text{Bob}} \) ...  
  (topic continuity)

  John handed \( \text{BOB} \) a book. \( \text{He}_{\text{John}} \) didn’t give ANN one.  
  (topic continuity, contrastive focus on goal)

• **Topic continuity:**
  
  JOHН handed Bob a book. \( \text{He}_{\text{John}} \) thought Bob should read it.  
  (topic continuity)
Brenda fed Anne a bowl of soup.
Goal focus example

Brenda fed Anne a bowl of soup.
**Results - English: Simple Salience**

- Significant effect of contrastive prosody in each group (L1, L2).
- Native speakers and J/K learners follow the **Simple salience** pattern.
  - More Source reference with Source focus (1st bar in each pair).
  - More Goal reference (and less Source) with Goal focus.
Exp. 4: Spoken Korean

Kim, Grüter & Schafer (2014)
Schafer, Kim & Grüter (in prep)

pdf at http://www2.hawaii.edu/~aschafer/
Critical comparison: contrastive prosody + –nun on Source vs. Goal

Source Focus ("SubjectFocus-nun"):  
CHELSWU-SSI-‐NUN Yengswu-ssi-eykey chayk-ul kenney-ess-ta.  
C-HON-TC Y-HON-DAT book-ACC hand-PAST-DECL

Goal Focus ("DativeFocus-nun"):  
Chelswu-ssi-ka YENGSWU-SSI-EYKEY-NUN...  
Chelswu-HON-NOM Yengswu-DAT-TC...  
‘Mr. Chelswu handed a book to Mr. Yengswu.’

• The particle –nun has been variously described as a topic marker, contrast marker, salience marker, etc. (e.g., I. Kim 2015).
Additional conditions: Broad focus

**Broad Focus, -nun on subject (“Subject-nun”):**
Chelswu-ssi-nun Yengswu-ssi-eykey chayk-ul kenney-ess-ta.
C-HON-TOP Y-HON-DAT book-ACC hand-PAST-DECL

**Broad Focus, -ka (-Nom) on subject (“Subject-ka”):**
C-HON-NOM Y-HON-DAT book-ACC hand-PAST-DECL

*(All with perfective aspect and a free prompt.)*
Source focus example

Pitch (Hz)

<table>
<thead>
<tr>
<th>SubjectFocus-nun</th>
<th>Dative</th>
<th>Object</th>
<th>Verb</th>
</tr>
</thead>
<tbody>
<tr>
<td>0.09867</td>
<td>5.692</td>
<td>31</td>
<td></td>
</tr>
</tbody>
</table>

Time (s)
Goal focus example
Broad focus example
Simple salience, topic continuity, and effects of morphology alone

• **Subj.-**nun vs. Subj.-**ka** (morphology alone): More Source reference with –**nun** than –**ka**?

• **SubjectFocus-**nun vs. **Subject-**nun: More Source ref. w/contrastive vs. broad focus?

• **DativeFocus-**nun vs. others: Simple salience or Topic continuity?
Exp. 4 - Korean: Subject ref.

- **SubjectFocus** $\rightarrow$ sig. more **Source** reference (vs. Subj-nun), as expected.
- **DativeFocus** $\rightarrow$ *also* sig. more **Source** reference; **Topic continuity. Less Goal ref.** (even though these are completed transfer events).
English (L1, L2) vs. Korean

- **Opposite effects of contrastive prosody** on the proportion of continuation subjects with Source reference.
  - **English**: GoalFoc → **Less Source reference** than in the SourceFocus condition, for native speakers and J/K learners of English
  - **Korean**: GoalFoc (DativeFocus-nun) → **More Source reference** than in the SubjectFocus-nun condition
Further exploration of Exp. 4

• The English experiment had **pronoun prompts**
  – Reference is restricted to Source/Goal
• The Korean experiment had **free prompts**
  – Allow reference to more entities
  – Allow null subjects and scrambling

➤ Look at **more categories of Subject reference**
➤ Look at the **first referent to be explicitly mentioned** in the continuation
Subject reference to more entities?
Yes. AltSource, AltGoal, Other.
First explicit reference: Increase in AltGoal ref in DativeFocus-\textit{nun} cond.
Same graphs divided by Subject form. Many null pronouns. Almost no scrambling or overt pns.
Korean Dative-*nun* condition

- Reference increases (vs. Subject-*ka* cond.) to:
  - Original topic (Source), expressed with a null subject or with a full NP subject (Topic continuity)
  - Alternative Goal, expressed as a full NP as the first explicit argument
    - Topic continuity: Null subject + AltGoal-Dat-*nun*
    - Topic shift: AltGoal-*nun* is the subject

- But reference to the Original Goal *decreases.*
What about coherence relations?

• Coherence relations describe how the continuation relates to the preceding sentence – whether it explains a cause of the event, describes an outcome, etc (Hobbs, 1979; Kehler 2002).

• Does contrastive prosody lead to an increase in the Contrast coherence relation?
Yes! Contrast CR with contr. focus.
(Top: Subject ref; bottom: 1st explicit ref.)
But almost no Contrast CR in English

• Almost no Contrast coherence relations in English
  (shown here: Perfective conditions, data from L1 and L2 speakers)

• Contrastive prosody + *-nun* in Korean → mention of alternatives
• Contrastive prosody in English → focused entity draws the topic
One more experiment

• The final experiment includes –Dat-\textit{nun} sentences and overt pronoun prompts, in a written experiment.

• **Will overt pronouns in Korean pattern with overt pronouns in English?**
  – Preview of answer: No.
Exp. 5: Written Korean

Kim, Grüter & Schafer (2014)
Schafer, Kim & Grüter (in prep)

pdf at http://www2.hawaii.edu/~aschafer/
Korean written -nun experiment

Three markings of information structure:

Sub-nun: Chelswu-nun Yengswu-eykey...
Sub-ka: Chelswu-ka Yengswu-eykey...
Dat-nun: Chelswu-ka Yengswu-eykey-nun...

Each tested with three prompt types:

... ∅ (“invisible pronoun”)
... Ku-nun (Overt pronoun-Top)
... (Cayu) (Free)
Null subject and full NP subject results are similar to those with spoken stimuli.

Overt pronoun results support a difference between Korean and English:
- **Korean**: GoalFoc (Dative-nun) $\rightarrow$ More Source ref. (vs. Subject-\textit{ka}; $\approx$ to Subject-nun)
- **English**: GoalFoc $\rightarrow$ Less Source reference (vs. SourceFocus condition)
Key result: Overt pronoun subjects (= middle row) also use the Contrast coherence relation
Conclusion
“Salience” is insufficient for describing these referential patterns

• The construct of “salience” by itself fails to capture:
  – the differences between the contrastively focused conditions in English versus Korean.
  – the differences in Korean among the focused Dative, focused Subject, and their alternatives.
English and Korean differ in the effects of contrastive focus on reference

• Simple salience vs. Topic continuity.
• Not explained by prompt alone.
• Not obviously explained by differences in prosodic realization; written experiments in each lg. show results similar to the spoken ones.
• Dat-*nun* + (implicit) contrastive prosody encourages the Contrast coherence relation and mention of alternatives; absent in English even with obviously contrastive prosody.
A set of semantic/pragmatic factors that affect in reference in Korean

- Event structure (completed vs. ongoing events) shapes coherence expectations, which shape reference.
- Null & overt subject pronouns increase reference to the preceding subject / discourse Topic.
- Dative-*nun* does **not** increase reference to the Goal, but it does encourage first explicit mention of an alternative Goal (null subj. + -Dat-*nun*).
- Contrastive prosody on the Topic **increases** Topic reference; increases reference to its alternative set.
- Contrastive prosody on the (non-topic) Goal **reduces** shifts to Goal topics; increases Topic reference; increases shifts to AltGoal topics.
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References


