

# The Coordinate Structure Constraint as a discourse-oriented principle: Further evidence from Japanese and Korean

Yusuke Kubota and Jungmee Lee  
The Ohio State University  
{kubota,jlee}@ling.ohio-state.edu

Grammar at the Interfaces (HPSG 2008)  
July 30, 2008

## 1 Introduction

- (1) a. \*This is the magazine that [John bought \_\_\_] and [Mary bought the book].  
b. This is the magazine that [John bought \_\_\_] and [Mary didn't buy \_\_\_].
- (2) **The Coordinate Structure Constraint:**  
In a coordinate structure, no conjunct may be moved nor may any element contained in a conjunct be moved out of that conjunct. (Ross 1967:89)

Goal of the talk: to compare two approaches to the CSC:

- the CSC as a *syntactic* constraint
- the CSC as a *pragmatic* principle

Empirical domain: relative clauses in Japanese and Korean

Why?:

- Japanese and Korean relative clauses (and coordination-like constructions) have properties that set them apart from their English counterparts.

- These differences turn out to have crucial ramifications to the predictions of the two approaches to the CSC to be compared.
- Specifically:
  - A pragmatically-based approach straightforwardly predicts the CSC patterns in Japanese and Korean relative clauses.
  - Syntactic approaches run into many complications.

Conclusion: The pragmatically-based approach should be favored over syntactic approaches to the CSC.

## 2 Kehler's (2002) account of CSC effects in English

### General assumptions

- (i) Sentences are interpreted to establish certain relations to each other in discourse.
- (ii) Discourse relations are categorized in terms of three broad categories:
  - **Resemblance** (e.g. (3))
  - **Contiguity** (e.g. (4a))
  - **Cause-Effect** (e.g. (4b))
- (iii) Different discourse relations impose different constraints on the individual clauses that participate in the relation:
  - **Resemblance:** each component of a coordinate structure must be parallel to other components in all relevant respects  
⇒ We call this the '*parallelism requirement*'.
  - **Contiguity/Cause-effect:** no parallelism requirement
- (iv) The extracted element (e.g. the head noun of a relative clause) is identified as the topic of the whole sentence.

### Analyses of CSC effects in English extractions

#### **Resemblance relation**

- (3) a. \*This is the magazine that [John bought \_\_\_] and [Mary bought the book].

- b. This is the magazine that [John bought \_\_\_] and [Mary didn't buy \_\_\_].
- The topic of the whole coordinate structure should be distributed across all of the conjuncts (due to the parallelism requirement).
  - Namely, the head noun should be associated with each conjunct.
  - Thus, extraction needs to occur across the board.

### Contiguity/Cause-effect relations

- (4) a. This is the whiskey that John [went to the store] and [bought \_\_\_].  
 b. This is the stuff that the guys in the Caucasus [drink \_\_\_] and [live to be a hundred].
- The topic of the whole sentence does not need to be the topic of each conjunct.
  - Thus, extraction does not need to occur across the board.

## 3 CSC patterns in Japanese and Korean relative clauses

Relative clauses in Japanese and Korean show the same CSC effects as their English counterparts (except for the tensed *-ko* construction, which will be discussed later).

- The CSC is obeyed when the two clauses are semantically symmetric (e.g. (5) and (7)).
- The CSC is not obeyed when the two clauses are semantically asymmetric (e.g. (6) and (8)).

### Japanese

- (5) a. \*Kore-ga [John-ga \_\_\_ kat-te/ka-i] [Mary-ga hon-o  
 this-NOM John-NOM buy-TE/buy-I Mary-NOM book-ACC  
 kat-ta] zassi-da.  
 buy-PAST magazine-COP  
 'This is the magazine that John bought \_\_\_ and Mary bought the book.'  
 b. Kore-ga [John-ga \_\_\_ kat-te/ka-i] [Mary-ga \_\_\_  
 this-NOM John-NOM buy-TE/buy-I Mary-NOM  
 kaw-anakat-ta] zassi-da.  
 buy-NEG-PAST magazine-COP

'This is the magazine that John bought \_\_\_ and Mary did not buy \_\_\_.'

- (6) a. Kore-ga [John-ga \_\_\_ non-de/nom-i] [byooki-ga naot-ta]  
 this-NOM John-NOM take-TE/take-I sickness-NOM recover-PAST  
 kusuri da.  
 medicine COP  
 'This is the medicine that John took \_\_\_ and recovered from the sick-  
 ness.'  
 b. Kore-ga [John-ga kesa oki-te/oki] [\_\_\_ tabe-ta]  
 this-NOM John-NOM this.morning wake.up-TE/wake.up.I eat-PAST  
 pan-da.  
 bread-COP  
 'This is the bread that John woke up this morning and ate \_\_\_.'

### Korean

- (7) a. \*I kes-un [John-i \_\_\_ sa(-ess)-ko] [Mary-ka  
 This thing-TOP John-NOM buy(-PAST)-KO, Mary-NOM  
 chayk-ul sa-n] capci-i-ta.  
 book-ACC buy-REL magazine-be-DECL  
 'This is the magazine such that John bought \_\_\_ and Mary bought the  
 book.'  
 b. I kes-un [John-i \_\_\_ sa(-ess)-ko] [Mary-ka \_\_\_  
 This thing-TOP John-NOM buy(-PAST)-KO, Mary-NOM  
 an-sa-n] capci-i-ta.  
 NEG-buy-REL magazine-be-DECL  
 'This is the magazine that John bought \_\_\_ and Mary did not buy \_\_\_.'  
 (8) a. I kes-un [John-i \_\_\_ mek(\*-ess)-ko] [byeng-i  
 This thing-TOP John-NOM take-PAST-KO sickness-NOM  
 na-un] yak-i-ta.  
 get.better-REL medicine-be-DECL  
 'This is the medicine that John took \_\_\_ and recovered from the sick-  
 ness.'  
 b. I kes-un [John-i onul-achim-ey shyawue-lul ha(\*-ess)-ko]  
 This thing-TOP John-NOM this.morning-at shower-ACC take-PAST-KO  
 [\_\_\_ mek-un] ppang-i-ta.  
 eat-REL bread-be-DECL  
 'This is the bread that John took a shower this morning and ate \_\_\_.'

### Amelioration effects of the tensed -ko construction

- (9) a. ?I kes-un [John-i \_\_ mek-ess-ko] [ku kyelkwa-lo  
This thing-TOP John-NOM take-PAST-KO the result-as  
pyeng-i na-un] yak-i-ta.  
sickness-NOM get.better-PAST.REL medicine-be-DECL  
'This is the medicine that John took \_\_ and as a result he recovered from  
the sickness.'
- b. ?I kes-un [John-i onul achim-ey shyawue-lul ha-ess-ko]  
This thing-TOP John-NOM today morning-at shower-ACC do-PAST-KO  
[ku taum-ey \_\_ mek-un] ppang-i-ta.  
the next-at eat-PAST.REL bread-be-DECL  
'This is the bread that John took a shower this morning and then ate \_\_.'

The amelioration effect by these adverbials suggests that the CSC effects observed in the tensed -ko construction are not purely syntactic.

## 4 Properties of relative clauses and coordination-like constructions in Japanese and Korean

### 4.1 Properties of relative clauses in Japanese and Korean

- (i) they do **not** involve extraction.  
(ii) the head noun is construed as the **salient** entity in discourse.

#### 4.1.1 The non-existence of a filler-gap linkage mechanism in Japanese and Korean relative clauses

'Gapless' relative clauses (Kuno 1973; Yoon 1993)

- (10) a. [gomu-ga yakeru] nioi  
rubber-NOM burn-NONPAST smell  
'the smell that characterizes the burning of rubber.'
- b. [komwu tha-n] naymsay  
rubber burn-REL smell  
'the smell that characterizes the burning of rubber'

### Lack of island effects (Kuno 1973, Yoon 1993, inter alia)

- (11) a. [[\_\_ osie-te-i-ta seito]-ga rakudaisi-ta] sensei  
teach-TE-PROG-PAST student-NOM flunk-PAST teacher  
'the teacher who the students that he was teaching flunked'
- b. [[\_\_ ip-koiss]-nun yangpok-i telep-un] sinsa  
wear-PROG-REL suit-NOM be.dirty-REL gentleman  
'the gentleman such that the suit that he is wearing is dirty'
- (12) a. [[\_\_ sinda] ato mina-ga kanasinda] zyosei  
die after all-NOM missed woman  
'the woman that all missed after she died'
- b. [[\_\_ cwuk-un] hwuey motwu-ka kuliuweha-n] yeca  
die-REL after all-NOM miss-REL woman  
'the woman that all missed after she died'

#### 4.1.2 The pragmatic properties of Japanese and Korean relative clauses

Yoon's (1993) analysis of Korean relative clauses

- There is a **compositionally underspecified** 'R-relation' holding between the denotation of the head noun and the denotation of the relative clause.
- The value of the R-relation is **determined by pragmatic factors**.

Example analysis

- (13) a. [John-i \_\_ manna-un] salam  
John-NOM meet-REL person  
'the person that John met'
- b. denotation of the relative clause:  
 $\lambda P\lambda x[P(x)\wedge\exists e[[meeting(e)\wedge AGENT(e, John)\wedge THEME(e, x')]\wedge R-rel(e, x)]]$
- c. denotation of the noun phrase containing the relative clause:  
 $\lambda x[person(x)\wedge\exists e[[meeting(e)\wedge AGENT(e, John)\wedge THEME(e, x')]\wedge R-rel(e, x)]]$
- In (13), unlike in an analysis with a filler-gap linkage mechanism, the head noun is **not** coindexed with the empty position in the relative clause.

- The variable  $x'$  that fills the THEME slot of the verb in the relative clause is **not** bound by the  $\lambda$ -operator.
- Instead, the relationship between the empty element and the head noun is established by means of the value of the R-relation being resolved via contextual information.

#### Pragmatic accounts of the problematic cases for syntactically-based analyses

- In **gapless relative clauses** like (10), by world knowledge, the R-relation between the event of rubber burning (the relative clause) and the smell (the head noun) is determined as establishing the cause-effect relationship.
- Regarding **the lack of island effects**, since the pragmatic analysis does not involve any syntactic mechanism of filler-gap linkage, it correctly predicts the lack of island effects in Japanese and Korean relative clauses.

## 4.2 Properties of coordination-like constructions in Japanese and Korean

- verbal ‘conjunctions’: *-te*, *-i* (Japanese), and *-ko* (Korean)
- two variants of the *-ko* construction: tensed, untensed

### Japanese

- (14) [John-ga zassi-o kat(\*-ta)-**te**],[Mary-ga hon-o kat-ta].  
John-NOM magazine-ACC buy-PAST-TE Mary-NOM book-ACC buy-PAST  
‘John bought the magazine and Mary didn’t buy the book.’
- (15) [John-ga zassi-o ka(\*-ta)-**i**],[Mary-ga hon-o kat-ta].  
John-NOM magazine-ACC buy-PAST-I Mary-NOM book-ACC buy-PAST  
‘John bought the magazine and Mary didn’t buy the book.’

### Korean

- (16) [John-i capci-lul sa-ess(\*-ta)-**ko**] [Mary-ka chayk-ul  
John-NOM magazine-ACC buy-PAST-DECL-KO, Mary-NOM book-ACC  
sa-ess-ta].  
buy-PAST-DECL  
‘John bought the magazine and Mary bought the book.’

- (17) [John-i capci-lul sa(\*-ta)-**ko**] [Mary-ka chayk-ul  
John-NOM magazine-ACC buy-DECL-KO, Mary-NOM book-ACC  
an-sa-ess-ta].  
NEG-buy-PAST-DECL  
‘John bought the magazine and Mary didn’t buy the book.’

### Morphosyntactic difference between English vs. Japanese and Korean

- Both conjuncts of the English *and*-construction **can** stand alone as independent sentences.
- The *-te/-i/-ko*-marked clauses **cannot** stand alone as independent sentences since they lack finiteness markers (i.e. tense markers in Japanese, and mood markers in Korean).

Following Yuasa and Sadock (2002), we take percolation of categorical information as the criterion for the syntactic distinction of coordination and subordination. Thus:

- The English *and*-construction is **syntactically coordinate**, but
- the *-te/-i/-ko* constructions are **syntactically subordinate** (since finiteness information of the whole sentence percolates only from the final clause).

## 5 Previous analyses of the CSC in Japanese and Korean

### 5.1 General problems for syntactic approaches

#### Two facts about Japanese and Korean:

- Relative clauses in Japanese and Korean are **not** ordinary extraction constructions (unlike their English counterparts).
- The *-te/-i* and *-ko* constructions in Japanese and Korean are **not** syntactically coordinate (unlike the English coordination).

#### Problems for syntactic approaches:

For syntactic approaches, the above two facts necessitate a reformulation of the CSC along the following lines:

- (i) The Japanese and Korean relative clauses obey the CSC **despite** the lack of a filler-gap linkage mechanism.
- (ii) The Japanese *-te*, *-i* and the Korean *-ko* construction obey the CSC **even though** they are syntactically subordinate. (Or else, one would need to maintain that the *-te*, *-i* and *-ko* constructions are syntactically coordinate, despite clear morpho-syntactic evidence that suggests otherwise.)

However, this begs the following questions:

- (i) If filler-gap linkage is not what triggers the CSC, then what is it that does so?
- (ii) If the CSC obtains even in a subordination construction, why does it not apply to other subordination constructions (e.g. ‘when’/‘because’-clauses)?

Neither of these problems has been adequately addressed in the literature.

## 5.2 Previous syntactic accounts

### 5.2.1 Tokashiki (1989)

#### Tokashiki’s syntactically-oriented analysis of Japanese *-te* and *-i* constructions:

- ***-i* construction:**
    - is **syntactically coordinate**
    - exhibits the CSC
  - ***-te* construction:**
    - is **syntactically subordinate**
    - does not exhibit the CSC
- (18) a. Kore-ga Taroo-ga [oki-te] [\_\_ arat-ta] kutu-da.  
 this-NOM Taro-NOM wake.up-TE wash-PAST shoe-COP  
 ‘These are the shoes that Taro washed after he woke up.’  
 (lit. \*‘These are the shoes that Taro woke up and washed.’)
- b. \*Kore-ga Taroo-ga [oki] [\_\_ arat-ta] kutu-da.  
 this-NOM Taro-NOM wake.up-I wash-PAST shoe-COP  
 intended: ‘These are the shoes that Taro washed after he woke up.’  
 (lit. \*‘These are the shoes that Taro woke up and washed.’)

#### Problems:

- There is no independent motivation for the syntactic distinction of coordination vs. subordination for *-te* and *-i*.
  - Exceptions to the posited syntactic distinction (some of which are noted by Tokashiki herself):
- (19) Kore-ga Taroo-ga [mise-e iki] [\_\_ kat-ta] sake-da.  
 this-NOM Taro-NOM store-to go-I buy-PAST sake-COP  
 ‘This is the sake that Taro went to the store and bought.’
- (20) \*[Taroo-ga uta-o utat-te] [Hanako-ga \_\_ hii-ta]  
 Taro-NOM song-ACC sing-TE Hanako-NOM play-PAST  
 gakki-wa gitaa-da.  
 instrument-TOP guitar-COP  
 intended: ‘The instrument such that Taro sang a song and Hanako played it is the guitar.’

### 5.2.2 Cho (2005)

#### Cho’s (2005) classification of two types of *-ko*:

- **adjunct** suffix (*-ko<sub>1</sub>*)
    - distinguishing property: the first clause is **untensed**
    - is **syntactically subordinate**
    - does not exhibit the CSC
  - **conjunct** suffix (*-ko<sub>2</sub>*)
    - distinguishing property: the first clause is **tensed**
    - is **syntactically coordinate**
    - exhibits the CSC
- (21) a. Kim-i [pap-ul mek-ko], [\_\_ mek-un] ppang  
 Kim-NOM rice-ACC eat-KO1 eat-REL bread  
 ‘the bread which Kim ate after eating the rice’
- b. \*Kim-i [pap-ul mek-ess-ko], [\_\_ mek-un] ppang  
 Kim-NOM rice-ACC eat-PAST-KO2 eat-REL bread  
 ‘the bread which Kim ate the rice and ate’ (Cho 2005:39)

### Problems:

- When there is no asymmetric semantic relation (such as cause-effect) between the two clauses, CSC violation results in unacceptability even with *-ko*<sub>1</sub> as in (22).
- The tensed *-ko* construction exhibits the amelioration effect with an overt adverbial expressing a discourse relation. Thus, the CSC is not entirely inviolable even with *-ko*<sub>2</sub> as in (9b).

(22) \*I kes-un [John-i \_\_\_ sa-ko] [Mary-ka chayk-ul sa-n]  
This thing-TOP John-NOM buy-KO, Mary-NOM book-ACC buy-REL  
capci-i-ta.  
magazine-be-DECL  
'This is the magazine that John bought \_\_\_ and Mary bought the book.'

(9b) ?I kes-un [John-i onul achim-ey shyawue-lul ha-ess-ko] [ku  
This thing-TOP John-NOM today morning-at shower-ACC do-PAST-KO the  
taum-ey \_\_\_ mek-un] ppang-i-ta.  
next-at eat-PAST.REL bread-be-DECL  
'This is the bread that John took a shower this morning and then ate \_\_\_.'

## 6 Pragmatically-based analysis of the CSC patterns in Japanese and Korean relative clauses

### Resemblance relation:

- (5) a. \*Kore-ga [John-ga \_\_\_ kat-te/ka-i] [Mary-ga hon-o kat-ta]  
this-NOM John-NOM buy-TE/buy-I Mary-NOM book-ACC buy-PAST  
zassi-da.  
magazine-COP  
'This is the magazine that John bought \_\_\_ and Mary bought the book.'
- b. Kore-ga [John-ga \_\_\_ kat-te/ka-i] [Mary-ga \_\_\_ kaw-anakat-ta]  
this-NOM John-NOM buy-TE/buy-I Mary-NOM buy-NEG-PAST  
zassi-da.  
magazine-COP  
'This is the magazine that John bought \_\_\_ and Mary did not buy \_\_\_.'

- (7) a. \*I kes-un [John-i \_\_\_ sa(-ess)-ko] [Mary-ka chayk-ul  
This thing-TOP John-NOM buy-PAST-KO, Mary-NOM book-ACC  
sa-n] capci-i-ta.  
buy-REL magazine-be-DECL  
'This is the magazine such that John bought \_\_\_ and Mary bought the book.'
- b. I kes-un [John-i \_\_\_ sa(-ess)-ko] [Mary-ka \_\_\_  
This thing-TOP John-NOM buy-PAST-KO, Mary-NOM  
an-sa-n] capci-i-ta.  
NEG-buy-REL magazine-be-DECL  
'This is the magazine that John bought \_\_\_ and Mary did not buy \_\_\_.'

- The head noun is identified as a salient entity in the event described by the relative clause (Yoon 1993) or what the relative clause is 'about' (Matsumoto 1997).
- Given this, relativization from a single conjunct incurs a violation to the parallelism requirement imposed by the Resemblance relation in terms of what is identified as the salient entity across different conjuncts.
- By contrast, ATB relativization maintains the symmetry across conjuncts in terms of the salience relation.

### Contiguity/Cause-effect relations:

- (6) a. Kore-ga [John-ga \_\_\_ non-de/nom-i] [byooki-ga naot-ta]  
this-NOM John-NOM take-TE/take-I sickness-NOM recover-PAST  
kusuri da.  
medicine COP  
'This is the medicine that John took \_\_\_ and recovered from the sickness.'
- b. Kore-ga [John-ga kesa oki-te/oki] [\_\_\_ tabe-ta]  
this-NOM John-NOM this.morning wake.up-TE/wake.up.I eat-PAST  
pan-da.  
bread-COP  
'This is the bread that John woke up this morning and ate \_\_\_.'
- (8) a. I kes-un [John-i \_\_\_ mek(\*-ess)-ko] [byeng-i  
This thing-TOP John-NOM take-PAST-KO sickness-NOM  
na-un] yak-i-ta.  
get.better-REL medicine-be-DECL

‘This is the medicine that John took and recovered from the sickness.’

- b. I kes-un [John-i onul-achim-ey shyawue-lul ha(\*-ess)-ko]  
 This thing-TOP John-NOM this.morning-at shower-ACC take-PAST-KO  
 [\_\_ mek-un] ppang-i-ta.  
 eat-REL bread-be-DECL

‘This is the bread that John took a shower this morning and ate \_\_.’

- The Contiguity/Cause-effect relations do not require each of the conjuncts to be interpreted symmetrically.
- Thus, there is nothing that precludes a possibility for the head noun to hold the salience (or aboutness) relation only with respect to a single conjunct.

## 7 Apparent challenge to the pragmatically-based account of the CSC

### 7.1 Problem: The anomalous behavior of the tensed *-ko* construction

(8) (with tensed *-ko*)

- a. \*I kes-un [John-i \_\_ mek-ess-ko] [pyeng-i  
 This thing-TOP John-NOM take-PAST-KO sickness-NOM  
 na-un] yak-i-ta.  
 get.better-REL medicine-be-DECL  
 ‘This is the medicine that John took \_\_ and recovered from the sickness.’

- b. \*I kes-un [John-i onul-achim-ey shyawue-lul ha-ess-ko]  
 This thing-TOP John-NOM today morning-at shower-ACC do-PAST-KO  
 [\_\_ mek-un] ppang-i-ta.  
 eat-REL bread-be-DECL  
 ‘This is the bread that John took a shower this morning and ate \_\_.’

## 7.2 Semantics and pragmatics of the *-ko* construction

### *Na and Huck’s (1992) observation*

- (23) a. John-i [ku yak-ul mek-ko] [pyeng-i  
 John-NOM that medicine-ACC take-KO sickness-NOM  
 na-ass-ta].  
 get.better-PAST-DECL  
 ‘John took that medicine and recovered from the sickness.’
- b. John-i [ku yak-ul mek-ess-ko] [pyeng-i  
 John-NOM that medicine-PAST-ACC take-PAST-KO sickness-NOM  
 na-ass-ta].  
 get.better-PAST-DECL  
 ‘John took that medicine and recovered from the sickness.’

- In both the tensed and untensed variants, the linear order of the two clauses is implicated to reflect the temporal order of the events.
- This implicature can be overridden for the tensed variant but **not** for the untensed variant.

- (24) a. (23a). #‘To be more accurate, he took the medicine **after** recovering from the sickness.’
- b. (23b). ‘To be more accurate, he took the medicine **after** recovering from the sickness.’

### *The compositional semantics of the *-ko* construction (following Lee 2008)*

- (25) a. denotation of (23a) (untensed *-ko*):  
 $AT(t_1, j\_take\_m) \wedge AT(t_2, j\_recover\_from\_s) \wedge t_2 < s^*$
- b. denotation of (23b) (tensed *-ko*):  
 $AT(t_1, j\_take\_m) \wedge t_1 < s^* \wedge AT(t_2, j\_recover\_from\_s) \wedge t_2 < s^*$

- $s^*$  designates the speech time
- $t_1$  and  $t_2$  are temporal **free** variables whose values are **contextually determined**.

### Pragmatic properties of the -ko construction

- In the untensed *-ko* construction, the temporal reference of the first clause is **underspecified** in the compositional semantics.

⇒ untensed variant: **stronger need for the determination of the temporal reference** of the first clause

Establishing discourse relations has a side effect of fixing the temporal order between the two clauses (which in turn determines the temporal location of the untensed clause):

(26) **Resemblance:** Two events need to be parallel in terms of temporal reference as well. That is, the events of the two clauses happen at **some comparable times**.<sup>1</sup>

**Contiguity:** The event of the first clause **immediately precedes** the event of the second clause with respect to some contextually determined scale.<sup>2</sup>

**Cause-Effect:** The event of the first clause **precedes** the event of the second clause for there to be a causal relation between the two.

Given above, the tensed and untensed *-ko* constructions differ in the urgency for the determination of a discourse relation:

- **untensed -ko:** urgent **requirement for the establishment of a discourse relation** (so that the temporal location of the first clause can be determined)
- **tensed -ko:** no such requirement (temporal reference is already specified in the compositional semantics)

The difference in the strength of the requirement for the establishment of a discourse relation leads to the following contrast in the pragmatic function of the two variants:

- **untensed -ko:** used only with an establishment of a coherent discourse relation.
- **tensed -ko:** implicates a **lack** of such discourse relation

<sup>1</sup>We assume that exactly what times count as ‘comparable’ depends on the specific context, where simple identity is the extreme case.

<sup>2</sup>We assume that something like Dowty’s (1986) Temporal Discourse Interpretation Principle (which requires the order of the clauses in the discourse to reflect the temporal order of the actual events) is encoded as part of this discourse relation.

**Gricean implicature:** the speaker would have used the untensed variant had s/he intended to indicate the existence of a discourse relation.

This analysis is consistent with the intuition held by native speakers:

- The tensed variant is felt to convey the events in the two clauses as two **unrelated** events (cf. e.g., Yoon (1997)).

### 7.3 Accounting for the differences between the tensed and untensed variants

#### Temporal implicature

- (23) a. John-i [ku yak-ul mek-ko] [pyeng-i  
John-NOM that medicine-ACC take-KO sickness-NOM  
na-ass-ta].  
get.better-PAST-DECL  
‘John took that medicine and recovered from the sickness.’
- b. John-i [ku yak-ul mek-ess-ko] [pyeng-i  
John-NOM that medicine-PAST-ACC take-PAST-KO sickness-NOM  
na-ass-ta].  
get.better-PAST-DECL  
‘John took that medicine and recovered from the sickness.’

- untensed variant (23a):
  - Strong requirement for establishing a discourse relation.
  - The most plausible option for a discourse relation is Cause-Effect.
  - Thus, the Cause-Effect relation is established and becomes **virtually uncancelable**.
- tensed variant (23b):
  - The requirement for discourse relation establishment is not so strong.
  - Thus, the temporal order is merely a **defensible implicature**.

### CSC effects

The CSC patterns in the tensed *-ko* construction can be accounted for in terms of an interaction of the discourse functions of relative clauses and the tensed *-ko* construction.

Specifically:

- **Requirement from the relative clause construction:**

The head noun needs to be identified as the salient element for the whole relative clause.

- **Property of tensed *-ko*:**

There is no discourse relation holding between the clauses; each clause is independent from others in the discourse structure.

Consequence of the above two factors:

- Each of the clauses needs to be independently responsible for the fact that the head noun is identified as the salient element.
- In other words, relativization needs to take place with respect to each clause. (The non-ATB pattern is ruled out.)

### Further consequence regarding the CSC: Amelioration effects of the tensed *-ko* construction

The amelioration effects in the tensed *-ko* construction receive a natural explanation in the present account.

- (9) a. ?I kes-un [John-i \_\_mek-ess-ko] [ku kyelkwa-lo  
This thing-TOP John-NOM take-PAST-KO the result-as  
pyeng-i na-un] yak-i-ta.  
sickness-NOM get.better-REL medicine-be-DECL  
'This is the medicine that John took \_\_ and as a result he recovered from  
the sickness.'
- b. ?I kes-un [John-i onul achim-ey shyawue-lul ha-ess-ko]  
This thing-TOP John-NOM today morning-at shower-ACC do-PAST-KO  
[ku taum-ey \_\_mek]-un ppang-i-ta.  
the next-at eat-PAST.REL bread-be-DECL  
'This is the bread that John took a shower this morning and then ate.'

- The adverbials help establish the discourse relation that licenses non-ATB relativization.
  - Conflict between the function of tensed *-ko* and overt indicators:
    - tensed *-ko*: lack of a discourse relation
    - indicator: existence of a discourse relation
- ⇒ These sentences are better than those without overt indicators but are nevertheless not fully acceptable.

## 7.4 Summary

The tensed *-ko* construction does not pose any problem for the discourse-oriented account of the CSC.

- The anomalous pattern of this construction can be fully adequately accounted for by means of an interaction of a subtle difference in compositional semantics and factors that influence discourse relations.
- This apparent problem turns out to provide **support** for the discourse-oriented account:
  - The best one can do in a syntactic account would be to merely describe the pattern by ascribing it to some syntactic property.
  - The discourse-oriented account that we have provided above:
    - (i) builds on a well-motivated analysis of the compositional semantics of the *-ko* construction (Lee 2008)
    - (ii) receives independent support from another difference between the two constructions (Na and Huck 1992).

## 8 Conclusion

### Summary of the proposed analysis

- The data from Japanese/Korean relative clauses provide strong support for the view that the CSC is a pragmatic principle.
  - Syntactic approaches suffer from many complications due to the syntactic differences between Japanese/Korean and English.
  - Our pragmatically-based approach predicts the relevant patterns straightforwardly due to the similarity of discourse functions of the relevant constructions in Japanese/Korean and English.
- The apparent problem of the tensed *-ko* also receives an independently-motivated account in the pragmatic approach.
  - Our solution to this problem seems more explanatory than a syntactic stipulation.

### Direction for future work

It is known (see, e.g. Tokashiki (1989) and Cho (2005)) that other displacement constructions in Japanese and Korean such as cleft and scrambling exhibit the same CSC patterns. A systematic comparison of the syntactic and pragmatically-based approaches with respect to this wider set of constructions is needed.

## References

- Cho, Sae-Youn. 2005. Non-tensed VP coordination in Korean: Structure and meaning. *Language and Information* 9(1):35–49.
- Dowty, David R. 1986. The effects of aspectual class on the temporal structure of discourse: Semantics or pragmatics? *Linguistics and Philosophy* 9(1):37–62.
- Kehler, Andrew. 2002. *Coherence, Reference and the Theory of Grammar*. Stanford, California: CSLI Publications.
- Kuno, Susumu. 1973. *The Structure of the Japanese Language*. Cambridge, Massachusetts: The MIT Press.
- Lee, Jungmee. 2008. The temporal interpretation of the Korean *-ko* construction: Aktionsart and discourse context. In A. Grønn, ed., *Proceedings of SuB12*, 367–383. Oslo.
- Na, Younghee and Geoffrey J. Huck. 1992. On extracting from asymmetrical structures. In D. Brentari, G. Larson, and L. MacLeod, eds., *The Joy of Grammar: A Festschrift in Honor of James D. McCawley*.

Ross, John Robert. 1967. *Constraints on Variables in Syntax*. Ph.D. thesis, MIT. Reproduced by the Indiana University Linguistics Club.

Tokashiki, Kyoko. 1989. *On Japanese Coordinate Structures: An Investigation of Structural Differences between the -Te Form and the -I Form*. Master's thesis, The Ohio State University.

Yoon, Jae-Hak. 1993. Different semantics for different syntax: Relative clauses in Korean. In A. Kathol and C. J. Pollard, eds., *Papers in Syntax*, vol. 42 of *Ohio State University Working Papers in Linguistics*, 199–226. Department of Linguistics, The Ohio State University.

Yoon, James Hye Suk. 1997. Coordination (a)symmetries. In ??, ed., *Harvard Studies in Korean Linguistics*, vol. 7, 3–30. Seoul: Hanshin Publishing Company.

Yuasa, Etsuyo and Jerry M. Sadock. 2002. Pseudo-subordination: A mismatch between syntax and semantics. *Journal of Linguistics* 38(1):87–111.