

The Coordinate Structure Constraint: Syntactic constraint or pragmatic principle?

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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)

Since Ross (1967), in the literature:

- the status of the CSC has been controversial: **syntactic** constraint (Postal 1998; Gazdar 1981; Steedman and Baldrige 2007 among others) vs. **pragmatic** principle (Lakoff 1986; Deane 1991; Asudeh and Crouch 2002; Kehler 2002 among others).
- BUT, most analyses focused on English data without cross-linguistic considerations.

Goal of the talk: to cross-linguistically examine and compare the two perspectives on the status of the CSC

Empirical domain: relative clauses in Japanese and Korean
Why?:

- They have the same CSC effects, but have different syntactic properties from their English counterparts.
- These differences turn out to have crucial ramifications to the predictions of the two views on the CSC. Specifically:
 - A pragmatically-based approach straightforwardly predicts the empirical patterns.
 - Syntactic approaches lead to 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) There are three broad categories of discourse relations:
 - Resemblance (e.g. (3))
 - Contiguity (e.g. (4a))
 - Cause-Effect (e.g. (4b))
- (iii) In different discourse relations, different constraints are imposed on the relationship between clauses.
 - **Resemblance** relation: Each conjunct in a coordinate structure must be parallel to other conjuncts in all relevant respects (henceforth, the '**parallelism requirement**')
 - **Contiguity/Cause-Effect** relations: no parallelism requirement
- (iv) Extracted element (e.g. the head noun of a relative clause) is identified as the topic of the whole coordinate 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 ___].
- Due to the parallelism requirement, the topic of the whole coordinate structure should be distributed across all of the conjuncts.
 - Namely, the head noun should be associated with a gap in 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].
- Contiguity/cause-effect relations do **not** impose the parallelism requirement on each conjunct, so the topic of the whole sentence does not need to be the topic of each conjunct.
 - Namely, extraction does **not** need to occur across the board.

3 CSC patterns in Japanese and Korean relative clauses

Coordination-like constructions in Japanese and Korean:

- verbal 'conjunctions': *-te*, *-i* (Japanese), and *-ko* (Korean)
- In the *-ko* construction, tense is optional in the nonfinal clauses
 ⇒ two variants of the *-ko* construction: tensed, untensed

Relative clauses in Japanese and Korean show the **same** CSC effects as their English counterparts (except for the tensed *-ko* construction, whose anomalous pattern receives an independently motivated explanation in Kubota and Lee (2008)).

- 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 then recovered from the sickness.'
- b. Kore-ga [John-ga kesa syawaa-o abi-te/abi] [___
 this-NOM John-NOM this.morning shower-ACC take-TE/take.I
 kigae-ta] syatu-da.
 change-PAST shirt-COP
 'This is the shirt that John took a shower this morning and changed ___.'

Korean:

- (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-COP-DECL
 'This is the magazine 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-COP-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-PAST.REL medicine-COP-DECL
'This is the medicine that John took ___ and then 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
[___kalaip-un] shyechu-i-ta.
change-PAST.REL shirt-COP-DECL
'This is the shirt that John took a shower this morning and changed ___.'

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-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-REL bread-be-DECL
'This is the bread that John woke up 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 a syntactic filler-gap linkage mechanism.
(ii) The head noun is construed as the **salient** entity in discourse.

4.1.1 The lack of a filler-gap linkage mechanism in Japanese and Korean relative clauses

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

- (10) a. [gomu-ga yake-ru] 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. [[___sin-da ato] mina-ga kanasin-da] zyosei
die-PAST after all-NOM miss-PAST 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:

- An 'R-relation' holds between the denotation of the head noun and the denotation of the relative clause.
- The value of the R-relation is **compositionally underspecified**, but **determined by pragmatic factors**.
- The missing element in the relative clause is not a gap (syntactically co-indexed with a filler), but a null pronoun (pragmatically resolved by contextual information).
- More specifically, the head noun is identified as a **salient** entity in the event described by the relative clause.¹

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

- (i) 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.
- (ii) **The lack of island effects** in Japanese and Korean relative clauses is also correctly predicted since the pragmatic analysis does not involve any syntactic mechanism of filler-gap linkage.

4.2 Properties of coordination-like constructions in Japanese and Korean

Japanese:

- (13) [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.'
- (14) [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.'

¹Matsumoto's (1997) analysis of Japanese relative clauses is in line with Yoon's pragmatically-based analysis. In Matsumoto (1997), the head noun is analyzed as what the relative clause is 'about'.

Korean:

- (15) [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.'
- (16) [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

Different properties between Japanese/Korean and English:

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

Problems for syntactic approaches:

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

- (i) Relative clauses in Japanese and Korean 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) What is it that triggers the CSC (if it's not a filler-gap linkage mechanism)?
- (ii) Why does the CSC not obtain in other subordination constructions (e.g. 'when'/'because'-clauses) whereas it does in the *-te/-i/-ko* constructions?

To our knowledge, these problems have not been appropriately addressed in the literature.

5.2 Previous syntactic accounts

5.2.1 Tokashiki (1989)

Tokashiki's syntactically-based analysis of Japanese *-te/-i* constructions:

- The *-i* construction is **syntactically coordinate**, so it obeys the CSC.
 - The *-te* construction is **syntactically subordinate**, so it does not obey the CSC.
- (17) 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
'These are the shoes that Taro washed __ after he woke up.'
(lit. *'These are the shoes that Taro woke up and washed __.')

Problems:

- no independent motivation for the syntactic distinction of coordination vs. subordination for the *-te/-i* constructions
 - counterexamples (some of which are noted by Tokashiki herself):
- (18) 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 __.'
- (19) *[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
'The instrument that Taro sang a song and Hanako played __ is the guitar.'
- assumption of a movement-based filler-gap linkage mechanism for Japanese relative clauses (which is empirically untenable)

5.2.2 Cho (2005)

Cho's (2005) classification of two types of -ko:

- **adjunct** suffix (-ko₁)
 - distinguishing property: the nonfinal clause is **untensed**
 - is **syntactically subordinate**
 - does not exhibit the CSC
- **conjunct** suffix (-ko₂)
 - distinguishing property: the nonfinal clause is **tensed**
 - is **syntactically coordinate**
 - exhibits the CSC

- (20) 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--ko₁ eat-REL bread
 'the bread which Kim ate the rice and ate __' (Cho 2005:39)

Problems:

- no independent motivation for the coordination/subordination distinction for the two variants of the -ko construction
 ⇒ Note that both variants lack the finiteness marker (i.e. a mood marker in Korean) in their nonfinal conjunct.
- counterexamples (e.g. (21))
 ⇒ If the two clauses are semantically symmetric, CSC violation results in unacceptability in both variants of the -ko construction (irrespective of whether they are analyzed as coordinate or subordinate).

- (21) *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 that John bought __ and Mary bought the book.'

- The amelioration effect in the tensed -ko construction
 ⇒ This suggests that the CSC is not entirely inviolable even with -ko₂ as in (22).

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

- assumption of a filler-gap linkage mechanism for Korean relative clauses (formulated by means of a SLASH-feature inheritance mechanism in HPSG)

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

Resemblance relation: (5) and (7) repeated here as (23) and (24)

- (23) 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 ___.’
- (24) 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 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 ___.’

Remember:

- the pragmatic property of a head noun of Japanese and Korean relative clauses
 ⇒ The head noun is identified with a salient entity in the event described by the relative clause (Yoon 1993) or what the relative clause is ‘about’ (Matsumoto 1997).
- the parallelism requirement (imposed by the Resemblance relation)
 ⇒ Each clause must be parallel to other clauses in all relevant respects.

Thus,

- in terms of what is identified as the salient entity across different clauses:
 - non-ATB relativization incurs a violation to the parallelism requirement, but
 - ATB relativization maintains the symmetry across conjuncts.

Contiguity/Cause-effect relations: (6) and (8) repeated here as (25) and (26)

- (25) 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 syawaa-o abi-te/abi] [___
 this-NOM John-NOM this.morning shower-ACC take-TE/take.I
 kigae-ta] syatu-da.
 change-PAST shirt-COP
 ‘This is the shirt that John took a shower this morning and changed ___.’
- (26) 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
 [___ kalaip-un] shyechu-i-ta.
 change-PAST.REL shirt-COP-DECL
 ‘This is the shirt that John took a shower this morning and changed ___.’

Remember:

The Contiguity/Cause-effect relations do **not** impose the parallelism requirement on each clause.

Thus:

- The head noun does **not** need to hold the salience (or aboutness) relation with both clauses.
- Namely, it is possible for the salience relation to be held only with respect to a single clause.
- Both ATB and non-ATB patterns of relativizations are correctly predicted to be acceptable in the Contiguity/Cause-effect relations.

7 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.
 - Syntactically-based analyses suffer from many complications due to the different properties between Japanese/Korean and English.
 - Our pragmatically-based analysis predicts the CSC patterns straightforwardly due to the similarity of discourse functions of the relevant constructions in Japanese/Korean and English.

Future research

- In this talk, we compared the two perspectives on the status of the CSC, taking the relative clauses in Japanese and Korean as an empirical domain.
- However, as noted in the literature (e.g. Tokashiki (1989) and Cho (2005)), the same CSC patterns are observed in other displacement constructions (e.g. cleft and scrambling) as well.
- More extensive comparisons of the two perspectives (across languages and constructions) will further our understanding of the true nature of the CSC.

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