

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

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1 Introduction

The Coordinate Structure Constraint (CSC) (Ross 1967) has been seen as one of the most cross-linguistically robust island constraints. Thus, in Japanese and Korean syntax, alleged cases of ‘extraction’ from relative clauses involving ‘coordination’ have been treated as violations of the CSC as a syntactic constraint (Tokashiki 1989; Cho 2005) (see, e.g., (1) and (2) in section 2 for relevant data).

In this paper, based on a re-examination of the CSC patterns in Japanese and Korean relative clauses, we argue that a cross-linguistic consideration from these languages lend further support for the view that the CSC is a pragmatic constraint rather than a syntactic one, along the lines of Lakoff (1986) and Kehler (2002).

The paper is structured as follows. In sections 2, we lay out the core CSC patterns in Japanese and Korean and present our pragmatically-based analysis. We show that the analysis adequately accounts for the whole range of data, except for one apparent problem (a careful discussion of which will be given in section 4). Then, in section 3, we review previous syntactic approaches and compare them with our analysis. We bring out two syntactic properties of the relevant constructions in Japanese and Korean which render any attempts of salvaging the CSC as a syntactic constraint implausible both on empirical and theoretical grounds. It will then be shown that our pragmatically-based analysis provides a simpler and more coherent account than such syntactic attempts in that it interacts with these syntactic properties making correct predictions on the relevant data set. Finally, in section 4, we take up the remaining issue, namely the apparent problem for the pragmatically-based approach, and argue that the problem actually turns out to provide further support for the pragmatically-based approach. That is, the pragmatically-based approach (but not a syntactic one) provides a basis for an explanatory solution for the observed anomaly by taking into account the interactions of independently motivated principles at different components of grammar (syntax, compositional semantics and pragmatics).

2 Basic patterns and the analysis

The following data of relative clauses (RCs) in Japanese and Korean seem to show that, just like in English, the CSC is operative in these languages:

- (1) a. *Kore-ga [John-ga ___ kat-te/ka-i] [Mary-ga hon-o kat-ta] zassi-da.
this-NOM John-NOM buy-TE/buy-I Mary-NOM book-ACC 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 ___ kaw-anakat-ta] zassi-da.
this-NOM John-NOM buy-TE/buy-I Mary-NOM buy-NEG-PAST magazine-COP
‘This is the magazine that John bought ___ and Mary did not buy ___.’
- (2) a. *I kes-un John-i ___ sa(-ess)-ko Mary-ka chayk-lul sa-n
This thing-TOP John-NOM buy(-PAST)-KO, Mary-NOM book-ACC buy-REL
capci-i-ta.
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 ___ an-sa-n
This thing-TOP John-NOM buy(-PAST)-KO, Mary-NOM NEG-buy-REL
capci-i-ta.
magazine-be-DECL
‘This is the magazine that John bought ___ and Mary did not buy ___.’

RCs in (1) and (2) involve what appears to be coordination of two sentences (where the first clause is marked by the morpheme *-te* or *-i* in Japanese and by the morpheme *-ko* in Korean; Korean has two variants, one with overt tense and the other without one in the first clause). Relativization of a noun from one conjunct leads to unacceptability whereas the ‘across-the-board’ relativization renders the sentences acceptable. Based on these data, authors such as Tokashiki (1989) and Cho (2005) formulated accounts of the CSC as a syntactic constraint.

However, exceptions to the above pattern of the kind familiar from literature on the English CSC (cf. Lakoff 1986; Kehler 2002) can also be found in Japanese and Korean. In the following examples, even though relativization is taking place just from one conjunct (just like in (1a) and (2a)), the sentences are perfectly acceptable (except for the tensed variant of the Korean *-ko* construction):

- (3) a. Kore-ga [John-ga ___ non-de/nom-i] [byooki-ga naot-ta] kusuri da.
 this-NOM John-NOM take-TE/take-I sickness-NOM recover-PST 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] pan-da.
 this-NOM John-NOM this.morning wake.up-TE/wake.up.I eat-PST bread-COP
 ‘This is the bread that John woke up this morning and ate ___.’
- (4) a. I kes-un [John-i ___ mek(-*ess)-ko] [byeng-i na-un]
 This thing-TOP John-NOM take-PST-KO sickness-NOM get.better-REL
 yak-i-ta.
 medicine-be-DCL
 ‘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] [___ mek-un]
 This thing-TOP John-NOM this.morning-At shower-ACC take-PST-KO eat-REL
 ppang-i-ta.
 bread-be-DCL
 ‘This is the bread that John took a shower this morning and ate ___.’

We defer discussion of how one might try to defend a syntactic account of the CSC to the next section and focus on presenting our account of the above patterns in this section. In developing our account, we build heavily on Kehler’s (2002) discourse-oriented approach to the CSC in English. Kehler accounts for the CSC effects in English in terms of the interactions of topichood and discourse relations holding between the conjuncts in coordinate structures. His proposal can be summarized as follows:

- (i) In English, extraction is a construction that identifies the extracted element as the topic.
- (ii) In sentences analogous to (1) and (2), the ‘Parallel’ discourse relation requires a common topic for the whole sequence of clauses.
- (iii) In sentences analogous to (3) and (4), the ‘Cause-Effect’ and ‘Contiguity’ discourse relations does not require a common topic for the whole sequence of clauses. (Roughly, ‘Contiguity’ is a discourse relation holding among a sequence of successive events each construed to be part of a larger event as a whole.)

(i) and (ii) correctly predict the (un)acceptability of English translations of (1a,b) and (2a,b). The reason that the English translations of (3) and (4) (the well-known CSC violation cases) are acceptable is that the Cause-Effect and Contiguity relations do not impose the requirement of a common discourse topic unlike in the Parallel relation. (Kehler (2002) motivates his notion of topichood in terms of the standard test of topichood such as *Speaking of X* sentences.)

It is noted in the literature that the head noun in Japanese and Korean RCs semantically functions as the topic of the RC (Kuno 1973; Yoon 1993) (again, empirical support for this comes from the high degree of correlation between what can be relativized and what can be topicalized with the overt topic marker in the two languages). Thus, we have:

- (i') In Japanese and Korean, the semantics of the relative clause identifies the head noun as the topic of the sentence from which it is relativized.

With (i') replacing (i), it is straightforward to see how the same empirical patterns in the two languages are predicted by the discourse-oriented approach. As we will see below, RCs and the alleged coordination constructions in Japanese and Korean have very different properties from their counterparts in English. However, these syntactic differences in principle do not have any direct impact on the discourse relations holding between the clauses. Then, it is not surprising at all that the same patterns are found across these three languages.

3 Comparison with syntactic approaches to the CSC

In this section, we compare our analysis with syntactic approaches to the CSC. We first point out two general problems that any syntactic approach needs to account for, neither of which, to our knowledge, have been adequately addressed in the previous literature, and then discuss specific problems of two representative cases of syntactic approaches to the CSC in the previous literature. We conclude the section by discussing how our pragmatically-based approach obviates the problems that these syntactic approaches run into.

3.1 General problems for syntactic approaches to the CSC

Assuming the standard definition of the CSC as a syntactic constraint on a filler-gap linkage mechanism, approaches that account for data like those in (1) and (2) in terms of the CSC as a syntactic constraint presuppose that (i) RCs in Japanese and Korean involve a filler-gap linkage mechanism and that (ii) the *-te/-i* and *-ko* constructions in Japanese and Korean are coordination constructions. However, there is no independent motivation for either of these assumptions.

First, as note by Yoon (1993) and Matsumoto (1997), RCs in Japanese and Korean are arguably not ordinary extraction constructions unlike English RCs. This lack of a filler-gap linkage mechanism in RCs in Japanese and Korean is exemplified by the following phenomena: (i) 'gapless' relative clauses (5), and (ii) lack of island effects ((6) is an example of the complex NP constraint violation).

- (5) a. [gomu-ga yakeru] nioi
rubber-NOM burn-NONPAST smell
'the smell that characterizes burning of rubber'
b. [komwu tha-n] naymsay
rubber burn-REL smell
'the smell that characterizes burning of rubber' (adapted from Yoon 1993)
- (6) 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' (Kuno 1973:239)
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' (adapted from Yoon 1993)

Given that RCs in Japanese and Korean differ from their English counterparts in that they don't involve a filler-gap linkage mechanism, if one attempts to account for the CSC effects in the Japanese and Korean RC examples by means of the CSC as a syntactic constraint, one would need to argue that RCs in Japanese and Korean obey the CSC despite the lack of a filler-gap linkage mechanism. However, this would entail that one would need to find some *syntactic* property other than filler-gap linkage which uniquely characterizes the set of constructions exhibiting the CSC effects. However, it is far from obvious what such a syntactic property would be.

Second, the *-te/-i/-ko* constructions in Japanese and Korean are syntactically subordinate, not coordinate, unlike the English coordination construction. Whereas both conjuncts of the English coordination

construction can stand alone as independent sentences, it is impossible for the *-te/-i/-ko*-marked clauses to stand alone as independent sentences since they lack finiteness markers (i.e. tense markers in Japanese, and mood markers in Korean) as shown by the following data:

- (7) [John-ga zassi-o kat(*-ta)-**te/i**],[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.
- (8) [John-i capci-lul sa-(ess)-(*-ta)-**ko**] [Mary-ka chayk-lul sa-ess-ta].
 John-NOM magazine-ACC buy-PAST-DECL-KO, Mary-NOM book-ACC buy-PAST-DECL
 'John bought the magazine and Mary bought the book.'

Following Yuasa and Sadock (2002), we take percolation of categorical information as the criterion for the syntactic distinction between coordination and subordination. With this criterion, all of the four constructions in Japanese and Korean are clearly subordination constructions.

The fact that the putative coordination constructions are really subordinate in Japanese and Korean again poses a problem for attempts of maintaining the CSC as a syntactic constraint. If one tries to keep the CSC as a syntactic constraint, one will be forced to say that the *-te/-i/-ko* constructions obey the CSC despite the fact that they are syntactically subordinate (in which case one would be faced with the question of what would exactly be the set of subordination constructions that obeys the CSC), or that these constructions are coordinate, despite clear morpho-syntactic evidence against such an assumption.

To the best of our knowledge, neither of these two issues have been adequately addressed in any of the previous accounts of the CSC as a syntactic constraint in Japanese and Korean.

3.2 Previous syntactic accounts of the CSC

In this section, we discuss two previous syntactic accounts of the CSC, one for Japanese and the other for Korean. These two approaches are representative of the previous syntactic approaches to the problem. As we will see, the main problem of these syntactic accounts is that, in addition to the general theoretical issues that we discussed above, the CSC patterns do not perfectly correlate with any syntactic distinction in either of the two languages. Thus, both approaches fall short of accounting for the whole range of empirical patterns.

Cho (2005) accounts for the CSC effects in the two *-ko* variants in Korean in terms of different syntactic structures. The tensed *-ko* construction is analyzed as syntactically coordinate and hence as obeying the CSC, whereas the untensed *-ko* construction is analyzed as syntactically subordinate and hence as being exempt from the CSC. However, as we have seen above (cf. (2)), when the discourse relation is Parallel, the untensed *-ko* construction does in fact obey the CSC contrary to the prediction of his analysis.

Tokashiki (1989) provides a similar account of the Japanese data. Based on the observation of certain examples in which the *-te* construction and the *-i* construction contrast in allowing and disallowing CSC violations (we disagree with Tokashiki in that we take this contrast only as a matter of degree and not as a reflection of any real difference in the grammar proper), she analyzes the *-i* construction to be syntactically coordinate and the *-te* construction to be syntactically subordinate. However, this analysis runs into exactly the same kind of problem as Cho's analysis. That is, the *-te* construction that Tokashiki analyzes as syntactic subordinate does obey the CSC when the discourse relation between the two clauses is Parallel, as we have already seen in (1). Moreover, her analysis cannot explain (for her) the anomalous behavior of the *-i* construction in (3) where it does not obey the CSC.

3.3 Comparison of pragmatically-based approach and syntactic approach

As we have seen above, syntactic approaches to the CSC suffer from both theoretical and empirical problems. By contrast, the pragmatically-based approach that we are advocating in this paper does not suffer from either problem.

First, the syntactic differences between the relative clauses and the alleged coordination constructions in Japanese and Korean on the one hand and English on the other hand is completely irrelevant for the pragmatically-based approach (but see section 5 for a discussion of a case where the interactions between pragmatic factors and syntactic forms produce an apparently anomalous pattern). Thus, our analysis predicts the data accurately even given these syntactic differences.

Second, the problems of the previous approaches by Cho and Tokashiki essentially reveal that CSC effects do not directly correlate with any surface syntactic forms, but rather that they correlate with the discourse relations between the two clauses. But again, that is just what is exactly predicted by the pragmatically-based approach.

4 Apparent challenges to the discourse-oriented account of the CSC

As discussed above, the Korean tensed *-ko* construction presents an apparent problem for the discourse-oriented approach to the CSC in that it seems to obey the CSC regardless of the discourse relation between the two clauses. We account for this anomalous pattern of the tensed *-ko* construction in terms of interactions of an independently motivated difference between the tensed and untensed variants of the *-ko* construction and factors influencing the establishment of discourse relations.

Our account of the contrast between the tensed and untensed variants builds on the compositional semantic analysis of the *-ko* construction proposed by Lee (2008). Lee proposes an analysis of the untensed *-ko* construction in which the temporal reference of the *-ko*-marked clause is compositionally underspecified, but is determined by pragmatic factors. Thus, sentence (9) receives the truth conditions along the lines of (10), where the temporal variable for the event time denoted by the untensed clause is a free variable:

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

$$(10) \text{ AT}(t_1, j_take_m) \wedge \text{AT}(t_2, j_recover_from_s) \wedge t_2 < st$$

Building on this analysis, we assume that the tensed variant of the *-ko* construction minimally differs from the untensed variant in that the tense of the *-ko*-marked clause actually locates the event of the *-ko*-marked clause with respect to the speech time. Thus, sentence (11) receives the interpretation given in (12):

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

$$(12) \text{ AT}(t_1, j_take_m) \wedge \underline{t_1 < st} \wedge \text{AT}(t_2, j_recover_from_s) \wedge t_2 < st$$

Given the contrast in their compositional semantics in (10) and (12), there is a crucial difference between the two variants of the *-ko* construction in the interface between the compositional semantics and discourse interpretation. That is, in the untensed variant (but not in the tensed variant), due to the underspecification of the temporal reference of the first clause, there is a need for the temporal reference of the first clause to be fixed in order for the sentence to be interpretable in the discourse.

Now, in sentences like (the untensed variants of) (4a) and (4b), the establishment of a plausible discourse relation (i.e. cause-effect and contiguity, respectively) has the effect of resolving the indeterminacy of the temporal reference. In such cases, speakers adhere to construing the sentence by means of such discourse relations so that the inference associated with the discourse relation becomes virtually uncancellable in pairs like (9) and (11). This is consistent with the observation made by Na and Huck (1992:263) that in the untensed variant (but not in the tensed variant) the temporal order between the events described by the first and second clauses is virtually uncancellable.

From this, it is only a small step to see why the tensed *-ko* construction does not exhibit the exceptions to the CSC effects in the non-parallel cases. That is, given that the untensed variant is closely associated with the establishment of a discourse relation, the use of the tensed variant signals the lack of such a discourse relation. But with the absence of a coherent discourse relation holding between the two clauses, relativization from a single conjunct (which is only possible with the help of a non-parallel discourse relation) is impossible. We propose that this is why the tensed *-ko* construction inherently resists CSC violation even in cases where the discourse context clearly suggests an asymmetrical interpretation.

5 Conclusion

We have argued that Japanese and Korean provide further support for the view that CSC is a pragmatic constraint, not a syntactic constraint. Given the different syntactic properties of the relevant constructions between Japanese/Korean and English discussed above, any syntactic account would need to be augmented with significant complications in order to account for the consistent patterns of the CSC effect whereas they are straightforwardly predicted under the pragmatically-based account. We have also shown that the anomalous behavior of the tensed *-ko* construction can be accounted for in terms of the interactions between compositional semantics and pragmatics. This illustrates the importance of taking into account the interactions of different components of grammar when we investigate a complex empirical problem. Such an approach not only leads to a simpler and more elegant solution to the particular problem at hand, but it also has the effect of reducing the complexities posited in each component of grammar. When we attempt to find correct patterns of the interface among each component of grammar, what seems complicated at first sight can be explained in a simple and principled manner, as we have demonstrated in this case study of the CSC effects in Japanese and Korean.

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