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

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Abstract

We re-examine the status of the Coordinate Structure Constraint (CSC) (Ross 1967) by drawing on evidence from Japanese and Korean. Contrary to the standard view that the CSC is a syntactic constraint, the empirical patterns from the two languages show that it should instead be viewed as a pragmatic principle. We propose a pragmatic analysis by building on and extending a previous proposal by Kehler (2002). Examining the Japanese and Korean data turns out to be vital in the comparison of the syntactic and pragmatic approaches, since the syntactic differences between the relevant constructions in the two languages and their counterparts in English crucially distinguish the predictions of the two approaches.*

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1. INTRODUCTION. Since Ross 1967, the standard view about the COORDINATE STRUCTURE CONSTRAINT (CSC) is that it is a syntactic constraint. Details vary, but all major syntactic theories (both derivational and nonderivational) have adopted some variant of Ross's (1967) original formulation in 1,[1] together with its 'across-the-board' (ATB) exception—which says that 1 can be violated if extraction occurs from all of the conjuncts—to explain contrasts between sentences like those in 2.[2]

(1) 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)

(2) 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 __].

However, exceptions to the CSC were already noted by Ross himself: if some semantic relation other than 'pure logical conjunction' obtains between the two conjoined clauses, extraction from a single conjunct is allowed, as exemplified by the following well-known examples.

(3) Here's the whiskey which [I went to the store] and [bought __]. (Ross 1967)

(4) That's the stuff that the guys in the Caucasus [drink __] and [live to be a hundred]. (Schmerling 1972)

Such examples have typically been dismissed as 'apparent' exceptions involving a special, 'asymmetrical' use of *and* that is exempt from the CSC. In fact, the very first such attempt was made by Ross (1967) himself, according to whom the underlying sentence for the relative clause in (3) is derived from the paraphrase *I went to the store to buy the whiskey*, and thus does not involve true coordination. This account was thoroughly criticized by Schmerling (1972), who noted that the two sentences are not synonymous. Despite the fact that later authors, like Ross, have failed to provide any clear evidence that this so-called asymmetrical coordination was syntactically different from 'canonical' coordination (as noted by Kehler (2002), unlike ordinary subordinate clauses, the second conjunct can never precede the first conjunct in this type of coordination), one sees various incarnations of this idea throughout the literature (see, for example, Steedman (2012) for the most recent proposal along these lines).

Among various island constraints, the nature of the CSC is especially important theoretically. Note first of all that (despite blatant exceptions such as (3) and (4)) the CSC has often been taken to be one of the more robust cases of island constraints (for other island constraints such as the adjunct constraint and the complex NP constraint, various sorts of amelioration effects have been discussed in the literature; cf. Kluender 1992; 1998, Hofmeister & Sag 2010). Second, the CSC has sometimes been used to crucially distinguish between predictions of different theoretical approaches; for example, one of the claimed big successes of GENERALIZED PHRASE STRUCTURE GRAMMAR (as opposed to derivational theories, in which the precise formulation of the CSC has always been a huge problem (Sag 2000)) was that it 'predicted' the CSC and its ATB exception via the slash-feature treatment of extraction (a similar claim survives to date in a related theory—cf. Steedman & Baldridge 2011). But if the phenomenon isn't syntactic to begin with, such an argument simply loses its force.

In fact, a pragmatic account of the CSC patterns[3] has been proposed by authors such as Lakoff (1986), Deane (1991), and Kehler (2002), based on data like (3) and (4), and building on related work by Schmerling (1972; 1975) and Levin & Prince (1986) (the latter is a study on Gapping, but it discusses properties of 'asymmetrical' coordination relevant for the CSC). Details vary, but the gist of their proposals is essentially the same: the key difference between examples like (2) and those like (3) and (4) is not syntactic, but is purely pragmatic. The former express situations or events that are parallel to each other, whereas in the latter, the two conjuncts do not have such parallel statuses. In (3), the conjoined clauses stand in a kind of 'stage-setting' relation that one serves with respect to the other, and in (4), there is a causal relation between the two events. Extraction is associated with the pragmatic effect of treating the extracted element as being prominent (or designated). Then, extraction from a single conjunct leads to unacceptability in examples like (2) since it destroys the parallel between the two conjuncts. By contrast, in (3) and (4), since no such parallel relation obtains between the two conjuncts to begin with, non-ATB extraction does not invoke any anomaly.

It is worth noting here that, though much less often discussed, the same pattern extends to other conjunction words such as *or* and *but* (p.c. Bob Levine).

(5) a. #Which city will Robin go to Seattle this week or visit __ next week?

b. #Who did John vote for __ but Mary voted for Obama?

(6) a. [He] regards the limitless abundance of language as its most important property, one that any theory of language must account for __ or be discarded. (Campbell 1982, 183)

b. What did John go to the store but forget to buy __?

Here again, a parallel relation blocks non-ATB extraction but nonparallel relations don't. These examples are especially troublesome for the type of accounts alluded to above which attempt to explain away the anomaly of the classical Ross/Schmerling data in (3) and (4) as cases of asymmetrical coordination, attributing the exceptional CSC violation to some special property of nonlogical *and*. For example, Sag et al. (1985) have a section (section 4.1) devoted to asymmetrical coordination, in which the authors discuss examples like (3) and (4) and propose to treat them via special types of phrase structure rules (distinct from their more general coordination rule) specifically applicable to the conjunction word *and*. (See also Goldsmith (1985) for a similar idea but one cast in terms of syntactic reanalysis.) Similarly, Steedman (2012, 95) continues with this line of analysis, suggesting to treat such examples 'by assigning additional independent categories to *and*, supporting extraction from left and right conjuncts respectively'. But on all such accounts, it remains totally mysterious why the same sensitivity to discourse relations extends to other conjunction markers.

We argue instead for a purely pragmatic account of the CSC patterns, building (primarily) on Kehler's (2002) work (in doing so, we introduce some refinements necessary for extending his approach to the Japanese and Korean data discussed below). Although the previous proposals by Lakoff (1986), Deane (1991), and Kehler (2002) (to which the more recent Chaves 2007; 2012 can be added) offer an intriguing alternative to the currently dominant syntactic treatment of the CSC, we think that they still do not show the superiority of the former over the latter convincingly enough. The data considered by these authors are limited (mostly) to English, and this limitation in empirical domain stands in the way of evaluating the true strength of this pragmatic alternative.[4] In fact, we believe that this is at least one of the reasons that the routinely invoked recourse to the lexical idiosyncrasy of asymmetrical *and* noted above is still prevalent in the literature. Note also that conducting extensive crosslinguistic work is especially important for the discussion of the CSC, since one of the central motivations for syntactic island constraints is precisely to explain the recurrent patterns of (un)grammaticality across typologically diverse languages. Such a fact, the argument goes, can be explained only if it is a manifestation of the universal grammar. Thus, an

advocate of a pragmatic alternative is responsible for showing that its crosslinguistic applicability at least matches that of the more popular syntactic view.

But merely broadening the range of languages considered does not necessarily lead to theoretically relevant findings. In order to evaluate the relative advantages of the pragmatic approach vis-a-vis the syntactic approach, it is crucial to examine data from languages that are typologically different from English, in particular, languages in which the kinds of meaning that are typically expressed by coordination in English are expressed by constructions that do not exhibit the characteristic properties of coordination and in which the kinds of semantic/pragmatic functions that English extraction serves are borne by constructions that do not display the canonical properties of extraction. Japanese and Korean, the two languages that we take up in this paper, turn out to be ideal candidates in this respect, since they satisfy both of these criteria. Coordination-like constructions in Japanese and Korean (i.e. ones that express the same kinds of semantic relations as English coordination) are morphosyntactically subordination rather than coordination (importantly, we exclude the CSC patterns from the set of diagnostics for coordination, since its inclusion would beg the question). Displacement constructions in these languages (of which we consider both the 'overt movement' type and the 'covert movement' type) also have different syntactic properties from English extraction constructions, suggesting that (at least on the null hypothesis) they should not be treated in terms of syntactic movement.

These differences between Japanese and Korean on the one hand and English on the other make it possible to compare the syntactic and pragmatic approaches with respect to a much broader range of data than has been done in the previous literature. And, more importantly, they enable us to compare the predictions of the two approaches more sharply. On the syntactic approach (unless with *ad hoc* extensions), one would expect that the CSC effects are found only in EXTRACTION from COORDINATE structures, whereas the pragmatic approach predicts that the same patterns will be found in constructions that share similar semantic and pragmatic properties. To preview the conclusion, we will see that basically the same patterns are found in all of the three languages, despite the syntactic dissimilarities in the relevant constructions involved. Moreover, the Japanese and Korean data we consider in this paper display additional complexities (due to the existence of the tensed vs. tenseless variants of the coordination-like construction in Korean and the so-called 'gapless' variants of displacement constructions in the two languages) of a kind not found in the

English data discussed in the previous literature, which ultimately provide further support for the pragmatic approach. These considerations lead us to the conclusion that the pragmatic approach to the CSC effects is not only viable, but is more explanatory than the more familiar syntactic approach.

Before moving on, we would like to briefly comment on two broader issues. First, data like (3) and (4) which cast doubt on the syntactic nature of the CSC have been taken by some authors—most notably Lakoff (1986)—to undermine the autonomy of syntax and to argue for an 'integrated' model of grammar in which syntactic, semantic, and pragmatic information is represented simultaneously (cf. Chaves 2007; 2012 for a recent explicit proposal along these lines). We think that this is too strong a conclusion to draw (see Kehler 2002: section 5.6 for a discussion on a related point). The CSC patterns (including the Japanese and Korean facts discussed below) can be accounted for adequately in any theory as a pragmatic effect as long as some reasonably articulate syntax-pragmatics interface is provided. Second, a note is in order in relation to recent processing-oriented accounts of other island phenomena (e.g. Kluender 1992; 1998, Hofmeister & Sag 2010). At a general level, our findings are compatible with these accounts, and we believe that the discourse relations that play crucial roles in our account should ultimately be given some psycholinguistic basis in a sufficiently elaborate theory of discourse processing (along the lines, for example, that the unacceptability of CSC violation examples like (2a) stems from the fact that the impossibility of establishing an appropriate discourse relation incurs an extra processing cost to an already costly process of parsing structures involving displacement). However, given the lack of such a model at present, we have chosen to couch our analysis in the terms of more traditional linguistic semantics and pragmatics.

The paper is structured as follows. Section 2 presents the relevant CSC patterns in Japanese and Korean. Section 3 reviews the previous syntactic approaches to the CSC in the two languages. Section 4 presents our pragmatic analysis of the CSC data. Section 5 concludes the paper.

2. THE CSC PATTERNS IN JAPANESE AND KOREAN. In this section, we examine the CSC patterns in Japanese and Korean. However, since both the extraction-like constructions and coordination-like constructions in the two languages have syntactic properties that are distinct from those of the corresponding English constructions, we review the properties of these constructions before examining

the CSC patterns.

2.1. DISPLACEMENT AND COORDINATION-LIKE CONSTRUCTIONS IN JAPANESE AND KOREAN. DISPLACEMENT CONSTRUCTIONS. For the counterpart of English extraction, we consider three overt 'displacement' constructions in Japanese and Korean (relativization, topicalization, and cleft) and one covert 'displacement' construction (*wh*-questions). The term 'displacement (construction)' is used here just as a theoretically neutral term for grouping together these constructions based on a certain syntactic similarity (while avoiding the theoretically loaded terms 'extraction', 'movement', or 'filler-gap dependencies'): in all of the overt displacement constructions, some material in the sentence appears in a 'displaced' position rather than in its canonical position within the sentence. And we call the *wh*-question constructions in these languages (both being *wh*-in situ) 'covert displacement', just for terminological consistency.

While the three overt displacement constructions in Japanese and Korean are apparently similar to extraction constructions in English, their syntactic properties are actually quite different from typical extraction constructions, as discussed by Kuno (1973), Yoon (1993), and Matsumoto (1997), among others. First, unlike extraction, these displacement constructions do not obey syntactic island constraints (except possibly for the CSC). Second, these constructions have the so-called gapless variants, that is, sentences that do not contain a syntactic gap corresponding to the 'displaced' element. The covert movement of *wh*-questions is also different from extraction in that it does not obey island constraints (see Appendix A for the relevant data; gapless examples can be constructed only for overt displacement and are thus not provided for *wh*-questions).

As for island sensitivity, it has often been pointed out that relative clauses and topicalization in Japanese and Korean do not obey syntactic island constraints (Kuno 1973, Yoon 1993, Matsumoto 1997). 7 and 8 show that relativization out of complex NPs (the internal bracketed part in 7 is a relative clause that modifies the following noun) and out of adjuncts is possible in both Japanese and Korean. Analogous examples with topicalization and cleft are given in Appendix A.[5]

(7) a. [[__ ki-te i-ru] yoohuku-ga kitanai] sinsi
wear-TE PROG-NPST clothes-NOM dirty.NPST gentleman
'the gentleman such that the clothes that he is wearing are dirty' (= 'the gentleman whose clothes are dirty')

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'

(8) 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'

An even more radical difference from typical extraction constructions is that these displacement constructions have so-called gapless variants where there is no missing position in the sentence corresponding to the syntactically 'displaced' element, as exemplified by the following relative clauses (again, for examples with other constructions, see Appendix A).

(9) a. atama-ga yoku-naru hon
head-NOM good-become.NPST book
'a book that one becomes smart by reading'

b. meli-ka cohaci-nun chayk
head-NOM become.good-REL book
'a book that one becomes smart by reading'

(10) a. watasi-de-sae inemuri-deki-nakat-ta eiga
I-COP-even doze.off-can-NEG-PAST movie
'the movie that (was too exciting that) even I could not doze off (by watching)'

b. na-to col swu-ka ep-ess-ten yenghwa
I-even doze.off possibility-NOM not.exist-PAST-REL movie
'the movie that (was too exciting that) even I could not doze off (by watching)'

(11) a. yakedosi-ta kizu
get.burnt-PAST scar
'a burn scar' (a scar caused by getting burnt)

b. John-i pwul-ey tey-n sangche
John-NOM fire-at get.burnt-REL scar
'John's burn scar'

Matsumoto (1997) studies the properties of these gapless relatives in detail and shows that they involve a link between the event denoted by the relative clause and another event involving the referent of the head noun. The latter event is not overtly expressed by the sentence but is invoked by the lexical content of the head noun or the main predicate of the relative clause. The two

events are related via a discourse relation instantiating the cause-effect category (broadly construed and including the nonprototypical 'violation of expectation' type relation). For example, in (9), the head noun *hon* 'book' invokes the event of reading a book via its lexical information (in some theories of the lexicon such as Pustejovsky's (1995) GENERATIVE LEXICON (GL), such information ('telic role' in the GL terminology) is part of the meaning of the word). From the general world knowledge that reading a book is an intellectual activity, a cause-effect relation is established between this implicit event and the event of one's becoming smart (i.e. the denotation of the relative clause). In (10), the relation between the relative clause event and the implicit event of watching the movie (again, invoked via the telic role of *eiga* 'movie') is not that of cause-effect, but rather, violation of expected consequence. This example relies on the knowledge (shared by the interlocutors) that the speaker is not very interested in movies in general and often falls asleep by watching them. With this contextual support, the content of the relative clause becomes relevant as a description of the movie since it can be interpreted as indirectly endorsing its unexpected high quality. Finally, in (11), the implicit event involving the head noun is invoked (primarily) by the main predicate of the relative clause rather than the head noun. *Yakedosuru* 'get burnt' is a creation verb and entails a result state of a burn scar being created. Note also here that the cause-effect relation between the relative clause event and the implicit event is the opposite from (9). Here, the relative clause event is the cause and the implicit event is the result.

The establishment of a discourse relation between the relative clause event and the implicit event contributed by the head noun depends heavily on shared knowledge among interlocutors. The following example from Matsumoto 1997 illustrates this point nicely.

(12) #atama-ga yoku-naru kuruma
head-NOM good-become car
intended: 'a car that one becomes smart by driving'

(12) is minimally different from the grammatical (9) in its head noun (*kuruma* 'car'), but is unacceptable because, given ordinary world knowledge, it is difficult to establish a causal relation between driving a car and becoming smart. We come back to this point of pragmatic sensitivity when we discuss the CSC effects in examples involving gapless relatives at the end of section 2.2.1 (p. 18). Not surprisingly, we will see there that the felicity of 'CSC violation' examples involving gapless relatives is also crucially affected by this sensitivity to pragmatic information and common

knowledge established among interlocutors that characterizes this construction.

The island insensitivity and the existence of gapless variants suggest that Japanese and Korean displacement constructions do not involve syntactic filler-gap dependencies. Given this evidence, the null hypothesis is that the relationship between the displaced element and the rest of the sentence is instead established pragmatically, as argued by Matsumoto (1997) and Yoon (1993).[6] Thus, following Yoon (1993), we assume a structure roughly along the lines of (13) for relative clauses in Japanese and Korean. We adopt HPSG since it enables us to state the relevant assumptions about the syntax-semantics interface explicitly and perspicuously. However, it should be noted that the pragmatic account of the CSC patterns we formulate below is entirely theory-neutral and does not depend on any specific aspects of the syntax we assume (also, here and in what follows, we write lambda terms for semantic translations for better readability, instead of adopting situation semantics or Minimal Recursion Semantics—the two more commonly adopted semantic frameworks in HPSG—but nothing hinges on this choice; $\sqcap$ ($\equiv \lambda P \lambda Q \lambda x.P(x) \wedge Q(x)$) stands for Partee & Rooth's (1983) generalized conjunction).

(13) <INSERT TREE FOR EXAMPLE (13) ABOUT HERE>

Here, crucially, the relative clause is a fully saturated sentence (SUBCAT $\langle\rangle$) with an empty SLASH feature (thus, no filler-gap linkage is involved). A unary rule projects this sentence to a prenominal modifier (for Korean, in which there is an overt relativizer, we could dispense with this unary projection by encoding the relevant information in the lexical entry for the relativizer, as is done in Yoon 1993) which combines with the head noun via the standard HEAD-ADJUNCT SCHEMA of HPSG. The semantics (specified in the CONT feature) of this prenominal modifier (which is inherited to the mother node via the SEMANTIC PRINCIPLE of HPSG (Pollard & Sag 1994)) says that the meaning of the whole relativized nominal is obtained by conjoining the denotation of the head noun with the property $\lambda x.\mathbf{property}_C(x, \neg\Diamond\mathbf{doze}(\mathbf{I}))$. Here, $\mathbf{property}_C$ is a context-sensitive operator that returns some appropriate property that holds of its first argument based on the proposition denoted by its second argument (this corresponds to the notion of 'pragmatically coherent property' that we discuss in section 4.2 below). For example, in the case of (13), via world knowledge, $\mathbf{property}_C$ identifies its first argument as an entity x such that the speaker could not doze off BY WATCHING x (where the relation 'by watching' is pragmatically invoked to

establish an explicit link between x and the content of the proposition that is the second argument of **property**$_C$).

Note that, corresponding to the absence of syntactic filler-gap linkage, there is no semantic variable binding involved between x and some argument position in the relative clause. Thus, the relation is established entirely pragmatically, along lines discussed above. We assume, following Yoon (1993), that even in cases where it apparently looks like there is variable binding, as in the case of 'ordinary' relative clauses such as (14), the link is established purely pragmatically.

(14) [John-ga __ kat-ta] hon
John-NOM buy-PAST book
'the book that John bought'

Just like the above gapless relative in (13), here, too, the relative clause is a fully saturated sentence (note that both Japanese and Korean allow for null pronouns). Compositionally, we obtain a translation along the lines of $\lambda x.\mathbf{property}_C(x, \mathbf{buy}(z)(\mathbf{j}))$ for the relative clause. The variable z is technically a free variable, but here it is pragmatically identified with x and we obtain an interpretation equivalent to $\lambda x.\mathbf{buy}(x)(\mathbf{j})$, since the most natural way of establishing a coherent relation between the denotations of the relative clause (in which the identity of the direct object argument is left unspecified) and the head noun is to simply identify this missing argument in the relative clause with the head noun.

This way, even though there is no filler-gap linkage (and therefore no explicit semantic variable binding) between an argument position in the relative clause and the head noun in the syntax (and semantics) of relative clauses, a link can be established between the relative clause and the head noun. Importantly, this analysis enables a uniform treatment of both 'ordinary' relative clauses and the gapless variants. We assume that a similar analysis extends to other displacement constructions in the two languages.

COORDINATION-LIKE CONSTRUCTIONS. In Japanese and Korean, what appear to correspond to English verbal (and sentential) coordination are expressed by marking the nonfinal conjuncts with the morphemes *-te* or *-i* (Japanese) and *-ko* (Korean) as in 15 and 16.

(15) [John-ga zassi-o kat(*-ta)**-te/-i**] [Mary-ga hon-o kat*(-ta)].
John-NOM magazine-ACC buy-PAST-TE/-I Mary-NOM book-ACC buy-PAST
'John bought the magazine and Mary didn't buy the book.'

(16) [John-un capci-lul sa(-ss)(*-ta)**-ko**] [Mary-nun chayk-ul sa-ss*(-ta)].
John-TOP magazine-ACC buy-PAST-DECL-KO Mary-TOP book-ACC buy-PAST-DECL
'John bought the magazine and Mary bought the book.'

One might be tempted to regard these constructions as instances of coordination, given the semantic similarity to English coordination. But it is important to keep in mind that what is at issue is the SYNTACTIC properties of the constructions at hand, since it is such syntactic properties that crucially determine whether the CSC—as it is formulated as a syntactic constraint—should be applicable to them. In fact, when we turn to purely (morpho)syntactic properties, it turns out that the evidence is to the contrary.[7] As can be seen in (15) and (16), the finiteness marker (namely, the tense marker *-ta* in Japanese and the mood marker *-ta* in Korean) cannot appear in the nonfinal clauses in these constructions. Moreover, as shown in (17) and (18), these nonfinal clauses with nonfinite endings cannot stand alone as full-fledged sentences.

(17) *John-ga zassi-o kat-te/-i.
John-NOM magazine-ACC buy-TE/-I
intended: 'John bought the magazine.'

(18) *John-un capci-lul sa(-ss)-ko.
John-TOP magazine-ACC buy-PAST-ko
intended: 'John bought the magazine.'

This shows that the *-te*/*-i*/*-ko*-marked clauses are (morphosyntactically) subordinate clauses.

Additional (though indirect) evidence for the (morphosyntactically) subordinate status of these constructions comes from the fact that verbal forms with the same morphological endings appear in other subordinate environments, which are normally analyzed as 'complex predicate' constructions. For example, Japanese has morphologically complex verbs such as V-*te miru* ('try V-ing'), V-*te morau* (benefactive), V-*i hazimeru* ('begin to V') and V-*i sugiru* ('over-V'), where the first verb marked in the *-te* or *-i* form is syntactically and semantically an argument of the second verb. The morphological forms of the first component of these complex verbs are identical to the *-te* and *-i* forms as they appear in the coordination-like constructions exemplified in (15) and (16). In both constructions, *-te* undergoes the same voicing assimilation morphophonological process in certain environments, and the *-i* form is the same conjugation form called *Renyookei* (lit. 'predicate-connecting form'; the verbal conjugation used in environments in which a predicate follows). Korean similarly has complex predicates involving *-ko* such as *V-ko siph* 'want to V', *V-ko iss* 'be in the process of

V-ing', and *V-ko mal* 'end up V-ing'. While the existence of morphologically identical forms with subordinate functions can provide only an indirect piece of evidence for the subordination view, such a fact is totally unexpected on the coordination view (the English conjunction words *and* and *or* do not have such homophonous subordination markers).

Thus, despite the semantic similarity to English coordination, independent morphosyntactic evidence suggests that the Japanese and Korean *-te*/*-i*/*-ko* constructions are subordination constructions.

Just to be explicit, here we spell out our syntactic assumptions about English coordination and the Japanese and Korean coordination-like constructions, continuing to use the HPSG notation. Following the standard assumption in HPSG (Pollard & Sag 1994, Sag et al. 2003, Chaves 2012), we assume that coordination in English is licensed by a nonheaded schema of the following form.

(19) <INSERT TREE FOR EXAMPLE (19) ABOUT HERE>

The syntactic categories of the conjuncts need to match,[8] and truth conditionally, the semantics (CONT) is simply the boolean conjunction of the meanings of the conjuncts. The CONTEXT feature (which stores pragmatic information in HPSG) additionally specifies that there is a contextually determined relation R that holds between the meanings of the two clauses. We assume that R is instantiated as one of the discourse relations in Kehler 2002. Since this is a nonheaded structure, the mother does not share its HEAD feature with any of its daughters.

By contrast, in Japanese and Korean, the coordination-like constructions instantiate head-adjunct structures. We assume that *-te*/*-i*/*-ko*-marked sentences in the two languages can be projected to a sentential modifier via a unary rule, and that adjunction to the head is then licensed by the head-adjunct schema. The structure for the *-te* form construction in (20) illustrates the analysis.

(20) <INSERT TREE FOR EXAMPLE (20) ABOUT HERE>

Here, the second clause is the syntactic head of the whole structure (thus the HEAD feature of the whole sentence is inherited from it). The *-te*-marked clause is an adjunct that modifies this head (as specified in its MOD feature). Via the semantic principle, the semantics (CONT) of the whole sentence is inherited from the modifier, which takes the meanings of the two clauses as arguments and simply conjoins them. In addition, the CONTEXT feature specifies that the relation R holds between the meanings of the two clauses (which is instantiated by default as the Parallel relation in the case of the tensed *-ko* construction, via the default specification mechanism in HPSG).

It should be clear from the above that, despite the syntactic differences, the coordination construction in English and the coordination-like constructions in Japanese and Korean (except for the tensed *-ko* construction) have exactly the same semantics and pragmatics.

With the syntactic assumptions about relative clauses and coordination-like constructions introduced above, we can analyze the structures of more complex sentences. For example, in the following example (repeated below as (28a)), the relative clause is itself a complex sentence involving the *-te*-form construction.

(21) [__ karuku-te] [hayaku hasireru] undoogutu
light-TE fast run.can sports.shoes
'sports shoes that are light and that one can run fast by wearing'
nikedainamo.seesaa.net/article/271915889.html

It is important to note that, given the assumptions introduced above, the second gapless clause is syntactically the head of the relative clause. As an illustration, a rough structure for (21) (licensed by (13) and (20)) is given in (22). As above, the variable x is not identified with z in the compositional semantics, but they are effectively identified with each other by instantiating **property**$_C$ appropriately.

(22) <INSERT TREE FOR EXAMPLE (22) ABOUT HERE>

2.2. CSC PATTERNS IN JAPANESE AND KOREAN. Having reviewed the basic properties of the relevant constructions, we are now ready to examine the CSC patterns involving them. Since the patterns are the same across different kinds of displacement constructions, we only go over the data involving relative clauses (as a representative case of overt displacement) and *wh*-questions (which is an instance of covert displacement). The data involving the other two constructions are given in Appendix B. Many examples below are attested data, all obtained from Google searches. For these attested data, we have indicated their URLs. For both Japanese and Korean, in examples in which both of the two forms of subordinate verb marking are acceptable (for example, (23a) and (24a)), the form that appeared in the original text is always given first.

The patterns are basically parallel to the English cases seen in section 1: the canonical CSC effect and the ATB exception are found if the two clauses stand in a semantically parallel (or symmetrical) relation to one another; if, on the other hand, there is a nonparallel (or asymmetrical) relation between the two, displacement from a single clause is possible. There are, however, two

important complications to this basic pattern, which turn out to provide crucial evidence for the pragmatic approach to the CSC effects over the syntactic approach. First, the variant of the *-ko* construction with an overt tense morpheme in the nonfinal clause (in what follows, we call this variant 'the tensed *-ko* construction') goes somewhat against the above generalization in that it resists displacement from a single clause uniformly, (apparently) regardless of the semantic relation between the two clauses. At first sight, this pattern might seem to pose a challenge to the pragmatic approach, but upon closer examination, the case of the tensed *-ko* construction in fact provides further support for it. Second, as discussed in section 2.1, Japanese and Korean overt displacement allows for gapless examples. The CSC patterns involving these gapless examples provide further evidence for the pragmatic approach that is not available in ordinary extraction constructions.

CSC PATTERNS IN RELATIVE CLAUSES. We now go over the CSC patterns in relative clauses. As we have already noted, in the examples below, we take the relative clauses to be prenominal modifiers, themselves consisting of the main (i.e. second) clause modified by the adverbial (first) clause. Note also that, in our analysis, in examples in which there is an apparent 'gap' corresponding to the head noun, the link between the two isn't syntactically mediated, but is established only indirectly by instantiating the context-dependent operator **property**$_C$ appropriately.

We start with the case involving parallel semantic relations, which exhibit the regular CSC pattern.[9] As expected, in this case, the sentences are acceptable only if relativization takes place from both clauses. Note that, in these examples, the presence/absence of the tense morpheme in the first conjunct in the Korean *-ko* construction does not have any effect on (un)acceptability.

(23) a. [kami-ga __ kyodakusi-te/kyodakusi] [ningen-ga __ kinsisi-ta] ai
god-NOM allow-TE/allow-I man-NOM forbid-PAST love
'a form of love which the god approved and men forbade'

piroringo.blog27.fc2.com/blog-entry-14561.html

b. #[kami-ga iseiai-o kyodakusi-te/kyodakusi] [ningen-ga __ kinsisi-ta]
god-NOM heterosexuality-ACC allow-TE/allow-I man-NOM forbid-PAST
ai
love
intended: 'a form of love which the god approved heterosexuality and men forbade'

(24) a. [pwumo-ka __ cohaha-ko/cohaha-yess-ko] [canye-ka __ an-cohaha-nun] panchan
parent-NOM like-KO/like-PAST-KO child-NOM NEG-like-REL dish

‘the side dishes that parents like(d) and children do not like’

www.food4.net/roman/Roman_40.htm

b. #[pwumo-ka __ cohaha(-yess)-ko] [canye-ka kimchi-lul an-cohaha-nun] panchan
parent-NOM like-PAST-KO child-NOM kimchi-ACC NEG-like-REL dish
intended: ‘the side dishes that parents like(d) and children do not like kimchi’

When the semantic relation between the two clauses is nonparallel, relativization out of a single clause becomes possible, except for the Korean tensed *-ko* construction. 25a and 26a are the ‘cause-effect’ type examples and 25b and 26b are the ‘stage-setting’ type examples.

(25) a. [__ syutuensi-te/syutuensi] [kookaisi-ta] sakuhin
appear-TE/appear.I regret-PAST piece
‘the piece (movie) that he appeared in and regretted’

www.cinematoday.jp/page/N0027776

b. [daigaku-o sotugyoosi/sotugyoosi-te] [__ syuusyokusi-ta] kaisya
college-ACC graduate-TE/graduate.I get.employed-PAST company
‘the company that he graduated from college and got employed at’

ameblo.jp/earthship-consulting/entry-11543781656.html

(26) a. [__ mek(#-ess)-ko] [paythal-i na-n] umsik
eat-PAST-KO stomachache-NOM happen-REL food
‘the food that (I) ate and got a stomachache’

www.ganatour.com/ga_na/info2/info_view.asp?no_re=4483&class_re=%BD%C4%BB%
E7

b. [shyaweha(#-yess)-ko] [__ palu-n] patiloshyen
take.a.shower-PAST-KO apply-REL body.lotion
‘the body lotion that I took a shower and applied’

adapted from ask.nate.com/qna/view.html?n=8814937

Note that here the tensed *-ko* construction displays a different pattern in that displacement from a single clause still gives rise to unacceptability. One might then think that the tensed *-ko* construction, unlike the other three constructions in the two languages, is a genuine case of coordination which uniformly obeys the (purely syntactic) CSC. However, things are not so simple, since the unacceptability of such sentences (i.e. those in (26) with the tense marker *-(y)ess* overtly realized) is significantly improved with the use of explicit expressions indicating the intended nonparallel semantic relations, as exemplified by the following sentences.

(27) a. ?[__ mek-ess-ko] [*kulayse* paythal-i na-n] umsik
eat-PAST-ko as.a.result stomachache-NOM happen-REL food
'the food that (I) ate and as a result got a stomachache'

b. ?[shyaweha-yess-ko] [*kulikonase* __ palu-n] patiloshyen
take.a.shower-PAST-KO after.that apply-REL body.lotion
'the body lotion that I took a shower and applied'

As in all other examples, the key factor involved is whether the right discourse relation can be established between the two clauses. As we discuss in more detail in section 4.3, the tensed *-ko* construction has a default association with a parallel discourse relation. As in (26), this default association cannot be overridden by purely contextual factors (such as the inferred cause-effect relation in (26a)), but if there is an overt linguistic material that indicates the intended discourse relation explicitly (as is done by the adverbial expressions in (27)), that overtly indicated discourse relation takes precedence over the default specification coming from the tensed *-ko* construction. See section 4.3 for more details. The important thing to note here is that, if we view the CSC as a purely syntactic constraint, it is difficult to account for the kind of amelioration effect observed in 27.[10]

As a final case involving overt displacement, let us consider examples involving gapless variants. The patterns observed with such examples again suggest that the key factor that is at play in determining the acceptability of the relevant sentences is the semantic relation between the two clauses rather than syntactic factors. The examples are given in (28)–(31).

(28) a. [__ karuku-te] [hayaku hasireru] undoogutu
light-TE fast run.can sports.shoes
'sports shoes that are light and that one can run fast by wearing'

nikedainamo.seesaa.net/article/271915889.html

b. #[__ kuroku-te] [hayaku hasireru] undoogutu
black-TE fast run.can sports.shoes
intended: 'sports shoes that are black and that one can run fast by wearing'

(29) a. [hayaku hasire-te] [tukare-nai] syuuzu
fast run.can-te get.tired-neg.NPST shoes
'shoes such that one can run fast and doesn't get tired by wearing them'

blog.goo.ne.jp/oka-young/e/ebe3fa855d74c58a9b53af7064f73714

b. #[hayaku hasire-te] [mookaru] syuuzu
fast run.can-te make.money-NPST shoes
intended: 'shoes such that one can run fast and the manufacturer can make money'

(30) a. [__ kapyep-ko] [phyenanhakey talli-lswuiss-nun] sinpal
light-KO comfortably run-can-REL shoes
'shoes that are light and such that one can run comfortably by wearing them'
blog.abcmart.co.kr/436

b. #[__ kemcengsayk-i-ko] [ppalli ttwui-lswuiss-nun] sinpal
black-COP-KO fast run-can-REL shoes
intended: 'shoes that are black and such that one can run fast by wearing them'

(31) a. [pyengsangsi-ey keletani-nun kes-man-ulo wuntong-ul ha-lswuiss-ko] [ttohan
usual.time-at walk-REL thing-only-with exercise-ACC do-can-KO also
kenkang-ul yuciha-lswuiss-nun] kinungseng sinpal
health-ACC maintain-can-REL functional shoes
'functional shoes such that one can do exercise and also keep healthy only by usual walking'
blog.naver.com/PostView.nhn?blogId=deuxman1981&logNo=120052990758&parent
CategoryNo=16&viewDate=&currentPage=1&listtype=0

b. #pyeongsangsi-ey keletani-nun kes-man-ulo wuntong-ul ha-lswuiss-ko ttohan
usual.time-at walk-REL thing-only-with exercise-ACC do-can-KO also
motun congepwuen-tul-i ponesu-lul pat-ass-ten kinungseng sinpal
every employee-PL-NOM bonus-ACC receive-PAST-REL functional shoes
intended: 'functional shoes such that one can do exercise only by usual walking and every employee got a bonus.'

In (28)–(31), the a. and b. examples in each pair have identical syntactic forms. Specifically, in (28) and (30), a gapless relative clause (the second clause) is conjoined with an ordinary relative clause (the first clause), whereas in (29) and (31), two gapless relative clauses are conjoined. We will discuss the implication of these data for the syntactic approach more carefully in the next section, but the fact that examples with syntactically identical forms exhibit different acceptability patterns already suggests that the explanation should lie somewhere else. Indeed, there is good reason to believe that the contrast between the a. and b. examples here is to be explained in terms of the pragmatic felicity condition on gapless relativization. As will be discussed in more detail in section 4, the relevant difference is whether a pragmatically coherent relation can be established between the whole relative clause and the head noun. (28a) and (30a) satisfy this condition since the two

clauses can be construed as simultaneously providing the same kind of information about the shoes in question, namely, their functionality (albeit from somewhat different angles). By contrast, the coherence between the two clauses is broken in (28b) and (30b), since the color description and the functionality description provided by the two clauses are unrelated. Similar explanations hold for the acceptability contrast in the gapless-gapless examples in (29) and (31), where the key factor that determines felicity is again pragmatic rather than syntactic.

CSC PATTERNS IN *wh*-QUESTIONS. Japanese and Korean are *wh*-in situ languages, that is, unlike English, there is no overt *wh*-movement, as exemplified by the following simple *wh*-question sentences.

(32) a. Taroo-wa dono hon-o yon-da-no?
Taroo-TOP which book-ACC read-PAST-Q
'Which book did Taro read?'

b. Chelswu-nun etten chayk-ul ilk-ess-ni?
Chelswu-TOP which book-ACC read-PAST-Q
'Which book did Chelswu read?'

The scope of the *wh*-expression is marked by the sentence-final question particles. For the 'CSC violation' examples involving the *-te*/*-i*/*-ko*-constructions below, we use only examples in which the *wh*-expression appears in the first clause since in examples in which a *wh*-expression appears in the second clause, it is not clear whether the *wh*-expression scopes over the whole coordinated sentence or only over the second clause.

The CSC patterns involving *wh*-questions are given in 33–36.

(33) a. [dono tiimu-ga seikoosi-te/seikoosi] [dono tiimu-ga sippaisi-ta]-ka
which team-NOM succeed-TE/succeed.I which team-NOM fail-PAST-Q
'which team succeeded and which team failed?'

blog.livedoor.jp/markzu/archives/51634347.html

b. #[dono tiimu-ga seikoosi-te/seikoosi] [Toyota-no tiimu-ga sippaisi-ta]-ka
which team-NOM succeed-TE/succeed.I Toyota-GEN team-NOM fail-PAST-Q
intended: 'which team succeeded and the Toyota team failed?'

(34) a. Nacun thwuphyoywul, [nwuka thwuphyoha(-yess)-ko] [nwuka pwulchamha-yess-na?]
low voter.turnout who vote-PAST-KO who not.attend-PAST-Q
'The low turnout of voters, who voted and who did not?'

www.makehope.org/attachment/1284233369.hwp?

b. #Nacun thwuphyoywul, [nwuka thwuphyoha(-yess)-ko] [tayhaksayng-tul-i
low voter.turnout, who vote-PAST-KO college.student-PL-NOM
pwulchamha-yess-na?]
not.attend-PAST-Q
'The low turnout of voters, who voted and college students did not?'

(35) a. [dono kusuri-o hukuyoosi-te/hukuyoosi] [zenkaisi-ta]-ka
which medicine-ACC take-TE/take.I recover-PAST-Q
'which medicine did they take and recover?'

www5b.biglobe.ne.jp/~ken-hari/61syyutankei.htm

b. yuukensya-wa [dono seisaku-o sizisi-te/sizisi] [toohyoosi-ta]-no-ka
voter-TOP which policy-ACC support-TE/support.I vote-PAST-NMLZ-Q
'which policy did the voters support and vote?'

chubu.yomiuri.co.jp/kyoiku/laboratory/laboratory110603_1.htm

(36) a. Cwungkwuk-eyse yenga-tul-un [etten yak-ul me(-#ess)-ko]
China-in young.child-PL-TOP which medicine-ACC take-PAST-KO
[samangha-yess]-nayo?
die-PAST-Q
'Which medicine did young children in China take and die?'

ask.nate.com/qna/view.html?n=8814937

b. Cocongsa-tul-un [etten os-ul ip(-#ess)-ko] [bihang-ul ha]-yess-ulkka?
pilot-PL-TOP which clothes-ACC put.on-PAST-KO flight-ACC do-PAST-Q
'Which clothes did pilots put on and fly?'

adapted from www.afplay.kr/m/post/view/id/296

The pattern is essentially the same as in the overt displacement constructions. As shown by (33) and (34), when the two clauses stand in a parallel semantic relation, both clauses have to contain a *wh*-expression. By contrast, 35 and 36 show that if the semantic relation between the two clauses is nonparallel, the first clause alone can contain a *wh*-expression which associates with the sentence-final question particle. And the following (37) shows that amelioration for the tensed variant in 36 works in the same way with explicit indicators of nonparallel semantic relations.

(37) a. ?Cwungkwuk-eyse yenga-tul-un [etten yak-ul me-ess-ko] [*kulayse*
China-in young.child-PL-TOP which medicine-ACC take-PAST-KO as.a.result
samangha-yess]-nayo?
die-PAST-Q
'Which medicine did young children in China take and die?'

b. ?Cocongsa-tul-un [etten os-ul ip-ess-ko] [*kulikonase* bihang-ul
pilot-PL-TOP which clothes-ACC put.on-PAST-KO and.then flight-ACC
ha]-yess-ulkka?
do-PAST-Q
'Which clothes did pilots put on and then fly?'

3. SYNTACTIC ACCOUNTS OF THE CSC PATTERNS IN JAPANESE AND KOREAN. In this section, we discuss the implications of the above data for syntactic approaches to the CSC. We first point out two general problems that any syntactic account faces and then discuss the problems for two representative syntactic approaches to the Japanese and Korean CSC patterns in the literature.

To start with the general problems, we saw above that both the displacement and the coordination-like constructions in the two languages have syntactic properties that are distinct from those of their English counterparts. Specifically, for all of the three overt displacement constructions, there is evidence that the linkage between the displaced element and the corresponding missing position (if there is one) within the sentence is NOT mediated by a syntactic filler-gap dependency. Regarding the coordination-like constructions in the two languages, we saw above that they are morphosyntactically subordination constructions. This means that, in order to account for the 'canonical' CSC pattern (which obtains when the two clauses stand in a semantically parallel relation) represented by the relativization data in 23 and 24 via the CSC, one needs to revise the original definition of the CSC substantially in the following two ways.

First, the CSC needs to be generalized to apply not only to coordination but also to a certain subset of subordination constructions. (Note once again that the CSC effect cannot be used as a diagnostic for coordination without invoking circularity of argument.) But such an attempt faces the following challenge. Assuming that the CSC is syntactic, the set of coordination and subordination constructions that it is applicable to should be given a purely syntactic characterization, but there is no purely syntactic property that groups together English coordination and the Japanese and Korean 'coordination-like' constructions to the exclusion of (other) subordination constructions.

Second, as an even more radical departure from the original conception of the CSC, one needs to assume that the CSC, unlike other island constraints, is not a constraint that specifically targets filler-gap dependencies. Again, such an attempt faces a difficult problem: it is not at all clear what the relevant syntactic property is that groups together typical extraction constructions (such as

English *wh*-dependency) and the displacement constructions in Japanese and Korean. But without identifying such a property, a syntactic account of the CSC that extends to the Japanese and Korean patterns from section 2 would not even be statable.[11] These two problems cast serious doubt on the plausibility of any attempt at capturing the Japanese and Korean CSC patterns syntactically, but, as far as we are aware, neither of them has been adequately addressed in the previous literature. We hasten to add here that the second problem may be circumvented by taking the CSC to be a constraint on LF representations rather than on syntactic movement (Fox 2000). However, note crucially that this still leaves unexplained why apparent acceptable violations to the CSC exist.

We now review two representative syntactic approaches, one on Japanese (Tokashiki 1989) and the other on Korean (Cho 2005). These previous proposals both attempt to account for the observed CSC patterns by positing a syntactic distinction (without independent empirical motivation) between coordination and subordination. However, as we will see, these attempts fail precisely for the reason that the posited syntactic distinction does not correlate with the observed empirical facts.

Tokashiki (1989) proposes that the two coordination-like constructions in Japanese differ syntactically in that the *-te* form instantiates subordination whereas the *-i* form instantiates coordination and that the CSC is applicable only to the latter. She considers the CSC patterns in three displacement constructions, namely, relativization, cleft, and scrambling, assuming (without argument) that these constructions involve filler-gap linkage. While there is a general tendency for the *-i* form to be associated with parallel semantic relations and the *-te* form with nonparallel relations, drawing a syntactic distinction between the two is empirically problematic, aside from the lack of independent motivation. First, as Tokashiki (1989, 70) notes herself, even the *-i* form does not obey the CSC if the semantic relation is nonparallel (we have already seen an attested example of this pattern in (25b) in section 2). Second, the *-te* form exhibits the CSC effect when the semantic relation is parallel, as we have already seen in section 2 (example (23b)). Thus, neither of the two assumptions that Tokashiki introduces correlates with the empirically observed CSC patterns. The crucial factor at play here instead seems to be the semantic relations between the two clauses.

Cho's (2005) account of the Korean CSC patterns is very similar to Tokashiki's proposal (see also Yoon (1997) for a similar idea for Korean). Cho assumes that the tensed *-ko* construction instantiates coordination and that the untensed variant instantiates subordination. With the assumption

that relativization and scrambling in Korean involve filler-gap dependency, this allows him to account for the fact that the tensed *-ko* construction (apparently) exhibits CSC effects uniformly. Aside from the lack of independent motivation for either the coordination/subordination distinction or the existence of filler-gap linkage for displacement constructions in Korean, this analysis is empirically untenable. In Cho's analysis, the CSC should not be operative in the untensed *-ko* construction since it is syntactically subordinate. However, as already observed in (24b) in section 2, the untensed *-ko* construction DOES exhibit the ordinary CSC pattern when the semantic relation between the two clauses is parallel, contrary to the prediction of Cho's analysis. Furthermore, the amelioration effects in the tensed *-ko* construction remains a mystery in Cho's analysis. On his account, since the CSC is a purely syntactic constraint, its violation should exhibit robust ill-formedness. As we have already seen, however, examples of the tensed *-ko* construction involving nonparallel semantic relations improve significantly with the help of explicit expressions indicating the intended discourse relations (cf. 27 on p. 18).

Finally, the gapless examples in (28)–(31) pose significant challenges to syntactic approaches to the CSC. On the syntactic approach, practically the only way to license the acceptable example here would be to license gapless relativization by invoking the notion of 'major subject' (Kuroda 1986) (which is a syntactic projection posited for non-θ-marked 'subjects') and treating (28)–(31) as instances of ATB extraction (out of the major subject position). (28a) would, for example, be analyzed roughly as in (38), where the trace of the relative clause operator in the second clause occupies the major subject position not directly linked to any argument of the verb.

(38) [t_i karuku-te] [t_i [hayaku hasireru]] Op_i undoogutu

Since the operator movement licensing relativization takes place in the ATB fashion, (38) does not violate the CSC. However, in such an account, the unacceptability of the b.-examples, whose syntactic structures are exactly identical to the a.-examples, would remain mysterious. Note especially that, here, even an escape hatch in terms of the notion of 'asymmetrical coordination' is not available. The unacceptable (28b) could be analyzed in the same way as (38), instantiating the ATB pattern. But then, its ill-formedness would not follow from anything.

4. THE CSC AS A DISCOURSE-ORIENTED PRINCIPLE. From the above, it should be clear that

syntactic approaches to the CSC not only suffer from outstanding theoretical problems but also miss a major empirical generalization: the parallelism in the CSC patterns in Japanese and Korean on the one hand and in English on the other. This suggests that the true generalization is not syntactic, but lies somewhere else. In fact, as already discussed in section 1, authors such as Lakoff (1986), Deane (1991), and Kehler (2002) have proposed pragmatic accounts of the CSC effects. We discuss below how this pragmatic alternative fares with the Japanese and Korean data from section 2, paying special attention to cases original to our own discussion and which turned out to pose most serious challenges to purely syntactic accounts: the patterns displayed by the tensed *-ko* construction and the 'gapless' displacement data. In the ensuing discussion, we build on Kehler's (2002) account as it is grounded in a general theory of discourse relations whose broad empirical applicability (in, for example, VP ellipsis, Gapping, and anaphora interpretation) is already demonstrated. While doing so, we offer a refinement of Kehler's approach, by examining in more detail the way in which his general theory of discourse coherence is applied to actual linguistic phenomena at the syntax-pragmatics interface, as such refinement becomes crucial when we broaden the range of constructions to be considered.

4.1. KEHLER'S THEORY OF DISCOURSE RELATIONS. Kehler's theory of discourse relations is based on David Hume's categorization of three basic relations that hold between ideas: Resemblance, Cause-Effect, and Contiguity. In this view, discourse relations are relations that speakers and hearers recognize when they process and make sense of a sequence of sentences as a coherent discourse. Due to their very nature, the process of establishing discourse relations depends on complex interactions of both grammatical and pragmatic factors, and, unlike purely syntactic principles, there is no mechanical way of determining the discourse relation for any given pair of sentences. The number of discourse relations that can hold between a pair of sentences is also not limited to one; multiple discourse relations can simultaneously be established as long as they do not conflict with one another. This often makes it difficult to identify the key discourse relation that plays a crucial role in affecting the acceptability of an actual example (especially in attested, rather than constructed data). However, as discussed by Kehler, there are certain adverbial expressions (e.g. *by contrast*, *therefore*, and *then*) which explicitly indicate the discourse relation that holds among sentences. In what follows, we take compatibility with such expressions as the primary evidence for identifying the key discourse relation.

Of the three discourse relations that Kehler posits, the Resemblance relation holds of a sequence of sentences where each sentence instantiates a relation (between possibly multiple terms) that is a subtype of a single more abstract or general relation. This includes more specific relations such as 'Parallel', 'Contrast' (expressed most typically by the connective *but*), and 'Exemplification' (where the first clause makes some general statement and the second clause exemplifies it). The 'Parallel' relation is exemplified by (39).

(39) John bought a book at a bookstore and Bill bought a magazine at a kiosk.

Here, we can identify parallel counterparts (John/Bill, a book/a magazine, and a bookstore/a kiosk) across the two clauses for which the same relation (x-buys-y-at-z) holds. The Parallel relation holds of a sequence of sentences just in case some kind of correspondence among sets of multiple entities like this can be established. In the 'Contrast' relation, the two clauses are tied together with opposite relations rather than the same relation, as in the following example:[12]

(40) John enjoyed the book very much, but Bill didn't like it at all.

Like Resemblance, Cause-Effect is a category that encompasses several types of more specific relations, including Result (the most prototypical case, where the first clause describes the cause and the second clause the result), Explanation (where the causal relationship between the two clauses is reversed from Result), and Violated Expectation.

Finally, the Contiguity relation holds of a sequence of sentences each describing events (ordered in accordance with the actual temporal progression) that can be construed as forming a coherent whole. The following is a typical example of the Contiguity relation.

(41) This is the kind of brandy that you can sip after dinner, watch TV for a while, sip some more of, work a bit, finish off, go to bed, and still feel fine in the morning.

In this CSC violation data due to Lakoff 1986, the conjoined clauses are not taken randomly from the set of things that one would do from the evening to the next morning, but rather centers around the theme of whether the brandy in question has the kind of quality that one would expect in it in a particular kind of situation (i.e. spending a mildly relaxing evening).

The Resemblance relation differs from the other two discourse relations in one important way: the clauses for which this relation holds are grouped together due to a similarity in form in the kinds

of relations they express (which is most typically transparently reflected in the predicate-argument structure of the main verbs in the respective sentences) and the occurrences of these events in time and space are independent of one another. In the other two discourse relations, by contrast, there is some kind of interdependence among the events that are grouped together. For Cause-Effect, the effect obviously depends on the cause (even in the Violated Expectation case, the outcome wouldn't count as an unexpected outcome in the absence of the expectation). Contiguity also encodes an interdependence among clauses in that each of the clauses is related to the others by the very fact that it constitutes a part of the whole integrated narrative sequence.

The boundary between Contiguity and Cause-Effect is less clear-cut. But the distinction between the two seems to come down to whether they (potentially) allow for a uniform formal characterization. The notion of causation is normally taken to be formalizable in terms of counterfactuality (Lewis 1973), and the various subcategories of Cause-Effect that Kehler posits in principle seem to lend themselves to similar characterizations. The Contiguity relation, by contrast, is supported by essentially contingent factors such as social conventions and the general cognitive capacity of human beings (as to what sorts of things are typically perceived as forming a series of 'related' events). Despite this fundamental distinction, in practice it is often difficult to draw a sharp line between the two, since an asymmetrical relation between two related events can often be understood ambiguously. We will not dwell on this problem further here since, for the analysis of the CSC effects, this distinction is less central than the distinction between Resemblance and these two nonparallel relations. However, as a way of appreciating the difficulty of identifying relevant discourse relations in real texts, we explicitly note potentially ambiguous cases as such in our discussion of specific examples below.

4.2. REFINING KEHLER'S ACCOUNT OF THE CSC PATTERNS. One potentially controversial aspect of the (otherwise overall very plausible) account of the CSC patterns by Kehler is that he directly identifies the discourse function of extraction with topichood. On his version of the pragmatic account, extraction from a single conjunct is disallowed when the Resemblance relation obtains between the two clauses, since in that case, the parallel between the two clauses in terms of the topic-comment structure is broken up. By contrast, with Cause-Effect and Contiguity relations, since the two clauses do not stand in a parallel relation to begin with, extraction from a single conjunct is acceptable. While we take the core underlying idea here to be on the right track,

directly identifying the notion of topic as the pragmatic function of extraction and ascribing the CSC effects to it is problematic, for the following two reasons. First, the CSC patterns are found in a wider range of constructions than extraction, as we have observed in section 2. Second, and more importantly, for at least some of English extraction constructions and the Japanese and Korean displacement constructions (most clearly for *wh*-questions and clefts, and probably for relativization as well), the discourse structural property of the displaced element is clearly not that of topic (at least, not in any standard sense of this notion). Instead, what we need here is some more general notion that captures what is common in the way in which various types of extraction and displacement constructions impose different discourse structural properties on the extracted or displaced element on the one hand and the rest of the sentence on the other. While fully addressing this issue is beyond the scope of this paper, we propose some working hypotheses below so that we can generalize Kehler's account to the Japanese and Korean data.

To see what is common to different extraction and displacement constructions, note first of all that all extraction/displacement constructions can be thought of as employing essentially the same 'syntactic schema' consisting of the extracted/displaced element and the rest of the sentence (which we call the 'nucleus' below), as it were, for dividing up linguistic material and putting them into different 'slots', each associated with some specific discourse structural property. The particular association between the syntactic 'slots' and the pragmatic properties differs from one construction to another. Roughly, in cleft and *wh*-questions, the displaced element is assigned the role of focus, with the nucleus providing background old information. Topicalization instantiates the exact opposite pattern, with the displaced element bearing the role of (discourse-old) topic and the nucleus providing new information for it. Finally, in relativization, the role of the nucleus is to attribute some property to the head noun, thereby narrowing down its possible referent.

Crucially, despite the specific differences among different constructions, we can identify a certain core abstract relation that holds between the displaced element and the nucleus: in all cases, the nucleus serves the role of providing some PRAGMATICALLY COHERENT PROPERTY which is to be predicated of the displaced element (this is closely related to Lakoff's (1986) 'Predication Condition'; but see section 1 for where we differ from Lakoff's general approach). The relevance of this notion, we believe, is not specific to the CSC data but has a much wider empirical application. For example, this notion, once embedded in Kehler's general theory of

discourse relations, immediately provides the right felicity conditions for gapless relativization (and its counterparts in other displacement constructions): a gapless relative is well-formed if and only if the relative clause event and the implicit event invoked by the head noun together form a pragmatically coherent property, instantiating one of the subcategories of the Cause-Effect relation. We thus propose to replace the topichood condition that Kehler imposes on English extraction with this more abstract constraint that the nucleus in extraction and displacement constructions contribute a pragmatically coherent property. We articulate further and illustrate the application of this notion in our discussion of specific examples below.

4.3. ACCOUNTING FOR THE CSC PATTERNS. We now examine the Japanese and Korean CSC data from the viewpoint of the present pragmatic approach. We illustrate the analysis with the relativization examples alone, but the same analysis applies to all the other cases as well.

First, the canonical CSC/ATB pattern in examples like 42 and 43 (= 23 and 24) can be attributed to the fact that the nucleus provides a pragmatically coherent property only in the ATB variant in such cases. The discourse relation indicators that go most naturally with these examples are *sore-ni taisi-te* 'on the other hand', *ippoo* 'by contrast' (in Japanese), and *panmyen-ey* 'by contrast' (in Korean). We thus assume that a Resemblance relation holds in these examples.

(42) a. [kami-ga __ kyodakusi-te/kyodakusi] [ningen-ga __ kinsisi-ta] ai
god-NOM allow-TE/allow-I human-NOM forbid-PAST love
'a form of love which the god approved and the humans forbade'

b. #[kami-ga iseiai-o kyodakusi-te/kyodakusi] [ningen-ga __ kinsisi-ta] ai
god-NOM heterosexuality-ACC allow-TE/allow-I human-NOM forbid-PAST love
intended: 'a form of love which the god approved heterosexuality and the humans forbade'

(43) a. [pwumo-ka __ cohaha-ko/cohaha-yess-ko] [canye-ka __ an-cohaha-nun] panchan
parent-NOM like-KO/like-PAST-KO child-NOM NEG-like-REL dish
'the side dishes that parents like(d) and children do not like'

b. #[pwumo-ka __ cohaha(-yess)-ko] [canye-ka kimchi-lul an-cohaha-nun] panchan
parent-NOM like-PAST-KO child-NOM kimchi-ACC NEG-like-REL dish
intended: 'the side dishes that parents like(d) and children do not like kimchi'

The problem with the 'single conjunct displacement' case in 42b and is essentially that while the

first clause can be construed as a well-formed property description to be predicated of the displaced element, the second clause cannot because it ascribes a parallel property to some OTHER entity (43b is similar, except that the statuses of the two clauses is reversed). Because of this asymmetry, the Resemblance relation between the two clauses in terms of the structure of predication is distorted, and hence they fail to form a pragmatically coherent property description as a whole, thus incurring infelicity.

It is important to note here that a syntactically parallel structure is not a necessary condition for establishing a Resemblance relation (though it practically seems to be a sufficient condition for it; the examples above and in Appendix B instantiating the ATB pattern all have such parallel syntactic structures). Since discourse relations are inherently pragmatic notions, there are other ways in which a Resemblance relation can be established. For example, the following is an attested example of ATB displacement in Japanese in which the missing argument positions in the two conjuncts corresponding to the head noun do not match in terms of their grammatical relations.

(44) [ooku-no gakusei-ga __ zyukoosi], [__ ninki-o hakusi-te iru] mono
many-GEN student-NOM take.I popularity-ACC get-TE be.NPST thing
'ones (= courses) which many students take and which are popular (among students)'
hermes-ir.lib.hit-u.ac.jp/rs/bitstream/10086/17836/2/0100908001.pdf

In this example, the 'gap' is in the direct object position in the first clause and in the subject position in the second clause. The two clauses are related via the Generalization relation (a subcategory of Resemblance where the first clause exemplifies a more general statement made in the second clause), based on the general world knowledge that having a large number of enrollment is a reliable indicator of popularity for university courses.

Here, we would like to briefly comment on how a Resemblance relation may be established via mechanisms other than purely syntactic parallels. In the Japanese example in (44), what crucially relates the two clauses is that they both pertain to some common aspect of the thing denoted by the head noun, namely their popularity among students. The sentence furthermore occurs in a context discussing whether a particular subject (specifically, history) is still popular among students nowadays; in other words, there is a common general QUESTION UNDER DISCUSSION (QUD) (Roberts 2012) to which both of the two clauses pertain. This common general QUD seems to play a key role in supporting a Resemblance construal in cases like this where the syntactic structure

alone does not provide enough clue. In fact, the same kind of effect seems operative in English too, in ATB extraction cases without a syntactic parallel, such as these (Chaves 2007: 33, (52a) and (53a)).

(45) a. Which famous rock star did [Mia photograph __] and [Fred tell you that Kim actually interviewed __]?

b. I know someone [who Bill has met __] and [who I think __ might like Mary].

Rather than (potentially) undermining purely pragmatic approaches to the CSC (as Chaves (2007; 2012) claims), such examples seem to suggest that the establishment of an appropriate discourse relation is in fact a fundamentally pragmatic process. For example, in (45b) (involving ATB extraction out of the matrix object and the embedded subject positions), there is a close parallel between the contents of the two clauses in that they both pertain to the question (which is precisely the sort of QUD in a context in which this sentence is most likely to be uttered) of where in the network of social acquaintance relations involving the interlocutors the person in question fits into.

In the above examples, even though the grammatical relations do not match, the fact that the two clauses both contain missing argument positions still provide some structural clues for parallel interpretation. If there are fewer clues for parallel construal syntactically, it is natural to expect that the establishment of discourse relations depends more heavily on purely pragmatic factors. This is indeed the case. As we discuss below at the end of this section, in examples involving gapless relativization, pragmatic information such as world knowledge has a more direct influence on whether the two clauses can establish a Resemblance relation and together form a pragmatically coherent property to serve as a well-formed relative clause as a whole.

When the two clauses stand in non-Resemblance semantic relations, unlike in the Resemblance cases above, the conjoined relative clause as a whole can form a coherent property description even if one of the two does not independently count as such. The relevant data are repeated below.[13]

(46) a. [__ syutuensi-te/syutuensi] [kookaisi-ta] sakuhin
appear-TE/appear.I regret-PAST piece
'the piece (movie) that he appeared in and regretted'

b. [daigaku-o sotugyoosi-te/sotugyoosi] [__ syuusyokusi-ta] kaisya
college-ACC graduate-TE/graduate.I get.employed-PAST company
'the company that I graduated from college and got employed at'

(47) a. [__ mek(#-ess)-ko] [paythal-i na-n] umsik
eat-PAST-ko stomachache-NOM happen-REL food
'the food that (I) ate and got a stomachache'

b. [shyaweha(#-yess)-ko] [__ palu-n] patiloshyen
take.a.shower-PAST-KO apply-REL body.lotion
'the body lotion that I took a shower and applied'

For the Cause-Effect examples in 46a and 47a, the most appropriate discourse relation indicator is *sono kekka* 'as a result' (Japanese), and *kulayse* 'as a result' (Korean), and for the Contiguity examples in 46b and 47b, *sosite* 'then' (Japanese), and *kulikonase* 'and then' (Korean). In the Contiguity examples 46b and 47b, the second clause (which has an overt 'gap') forms the core property description and the first ungapped clause is related to it by providing further circumstantial information. In this sense, the two clauses together form a pragmatically coherent property description, even though the first clause, if taken alone, fails to do so. Similarly, in the Cause-Effect examples in 46a and 47a, because of the causal link between the two clauses, the second clause (which doesn't count as a property description for the head noun by itself) is still relevant for the whole property description in that it contributes further information (specifically, the consequence or outcome) about the core property description provided by the first clause.[14]

As should already be clear at this point (note especially the discussion of how the Resemblance relation is established in examples like (44) and (45) without syntactic parallel between the two clauses), the identification of discourse relation depends heavily on pragmatic factors. Cases that illustrate this point most strikingly come from examples involving highly culture-specific assumptions such as traditional customs and superstitions, illustrated by the following attested examples.

(48) a. Ima-kara rainen-o kangaeru-nante, [mame-o mai-te] [__ oiharat-ta]
now-from next.year-ACC think-like bean-ACC spill-TE expel-PAST
oni-ni waraw-are-te iru desyoo-ne.
evil.spirit-DAT laugh-PASS-TE be must
'The evil spirits that we have spilled beans and expelled will surely laugh at us if they come to know that we are already worrying about the next year at this point.'
blog.goo.ne.jp/yayohi841/m/200902/?st=0&page=1

b. #[tane-o mai-te] [__ oiharat-ta] oni
seed-ACC spill-TE expel-PAST evil.spirit

intended: 'evil spirit that one has expelled by spilling seeds'

(49) a. [so thaymong-ul kkwu-ko] [__ nah-un] atul-un hyoseng-i
cow precognitive.dream-ACC dream-KO give.birth.to-REL son-TOP filial.love-NOM
cikukha-ta.
extreme-NPST.DECL
'A son whom we dream about a cow in the precognitive dream and give birth to is extremely devoted to his parents.'
blog.naver.com/PostView.nhn?blogId=process280&logNo=150138014131

b. #[so chayk-ul ilk-ko] [__ nah-un] atul
cow book-ACC read-KO give.birth.to-REL son
intended: 'a son whom we read a book about cows and give birth to'

(48a) involves relativization out of the second clause alone. Its felicity is supported by the belief that spilling beans on the ground (on the final day of winter in the traditional Japanese calendar called *Setsubun*) helps expel evil spirit from one's house. A minimally modified example (48b) in which the word *mame* 'bean' is replaced by *tane* 'seed' eliminates the supporting culture-specific knowledge and is thus ill-formed. The Korean example (49a) (with its minimal counterpart (49b)) exemplifies essentially the same point. Here, the supporting belief is that if one dreams about a cow in one's precognitive dream, then one gives birth to a child who is devoted to his/her parents.

To summarize our findings up to this point, unlike the syntactic approaches reviewed in section 3, our pragmatic account explains all of the CSC patterns correctly, modulo the somewhat exceptional behavior of the Korean tensed *-ko* construction. Note in particular that the examples involving culture-specific beliefs we have just seen strongly suggest that the key factor involved is pragmatic. We now address the apparent exception of the tensed *-ko* construction, and its amelioration effect with overt discourse relation indicators, which is also governed by fundamentally pragmatic factors. The relevant examples are repeated in 50.

(50) a. ?[__ mek-ess-ko] [#(*kulayse*) paythal-i na-n] umsik
eat-PAST-ko as.a.result stomachache-NOM happen-rel food
'the food that (I) ate and as a result got a stomachache'

b. ?[shyaweha(-yess)-ko] [#(*kulikonase*) __ palu-n] patiloshyen
take.a.shower-PAST-KO after.that apply-REL body.lotion
'the body lotion that I took a shower and applied'

In our approach, these facts can be explained in terms of an interaction between the discourse

structural properties of the tensed *-ko* construction and the meanings of the relevant adverbial expressions. Specifically, we assume that the tensed *-ko* construction is associated with the Resemblance relation by default.[15] This assumption is supported by observations made by previous authors such as Na and Huck (1992) that the tensed *-ko* construction expresses 'pure logical conjunction'. However, we depart from previous authors in assuming that the correlation between form and discourse relation here is only a default, and this difference becomes crucial in our account of the overall CSC patterns with the tensed *-ko* construction, as we show momentarily.

With this assumption, the contrast between the examples in 50 with and without overt adverbial expressions can be explained as follows. When purely pragmatic factors (in this case, preference for asymmetric relations due to world knowledge, cognitively salient typical courses of events, the particular context of utterance, etc.) compete with the default discourse relation that is grammatically encoded in the tensed *-ko* construction, the latter wins over the former since grammatically encoded information is more stable and reliable than purely pragmatic information. Thus, in the version lacking an overt adverbial, a Resemblance relation is established despite the contextual preference for a Cause-Effect/Contiguity-type construals. This requires displacement to take place from the two clauses, since both clauses need to be 'on a par' as to whether they can stand alone as a coherent pragmatic property description by itself. However, the association between the tensed *-ko* construction and the Resemblance discourse relation is only a default, which means that it can be overridden if some specific asymmetrical discourse relation is semantically entailed (rather than merely pragmatically implicated) by some expression in the sentence. This is precisely what happens when an overt adverbial expression is present. In this case, the discourse relation contributed by the overt adverbial wins, and hence displacement from a single clause becomes possible.[16]

Finally, under the present pragmatic account, cases involving gapless relativization such as (51) and (52) can also be accounted for straightforwardly. (We reproduce here only the Japanese data; see p. 19 for the corresponding Korean examples.)

(51) a. [__ karuku-te] [hayaku hasireru] undoogutu
light-TE fast run.can sports.shoes
'sports shoes that are light and that one can run fast by wearing'

b. #[__ kuroku-te] [hayaku hasireru] undoogutu
black-TE fast run.can sports.shoes

intended: 'sports shoes that are black and that one can run fast by wearing'

(52) a. [hayaku hasire-te] [tukare-nai] syuuzu
fast run.can-te get.tired-neg.NPST shoes
'shoes such that one can run fast and doesn't get tired by wearing them'

b. #[hayaku hasire-te] [mookaru] syuuzu
fast run.can-te make.money-NPST shoes
intended: 'shoes such that one can run fast and the manufacturer can make money'

Here again, the key factor is whether the two clauses taken together constitute a pragmatically coherent property description. (51a) is well-formed since the ordinary relative clause and the gapless clause both provide property descriptions pertaining to the functionality of the shoes. Thus, they are coherent and can together form a composite property description. By contrast, in (51b), while the first clause describes the appearance of the shoes (by specifying its color), the second, gapless clause describes the functionality of the shoes. Since the two property descriptions each pertain to different aspects of the shoes in question, simply conjoining them does not yield a pragmatically coherent property description as a whole.[17] A similar explanation holds for the contrast in (52), where both examples involve conjunction of two gapless relative clauses. Thus, on the present approach, the acceptability contrasts involving gapless relativization are accounted for via the same principle of pragmatic coherence governing the CSC patterns of ordinary relative clauses.

In this section, we have seen that the pragmatic approach to the CSC provides a uniform explanation for the CSC patterns involving the four kinds of displacement constructions in Japanese and Korean. Note in particular that our approach not only covers the basic cases with Resemblance and non-Resemblance discourse relations but also extends straightforwardly to the more complex cases which pose significant problems for the syntactic approach, namely, the amelioration effect found in the tensed *-ko* construction and the examples involving gapless variants.

5. CONCLUSION. In this paper we have reexamined the status of the CSC by drawing on data involving four kinds of displacement constructions in Japanese and Korean. As we have argued above, the evidence from this particular empirical domain is especially important in evaluating and comparing pragmatic and syntactic accounts of the CSC. Both the displacement and the

coordination-like constructions in the two languages have properties that are different from the corresponding constructions in English, which, taken together, pose a number of problems for syntactic accounts. By contrast, the pragmatic account we have proposed in this paper straightforwardly predicts the right patterns in all relevant cases. We thus conclude that the evidence from Japanese and Korean we have presented in this paper provides strong support for the view that the CSC effects are pragmatic rather than syntactic.

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Notes

[1]In this paper, we only deal with the so-called 'element constraint' of the CSC (i.e. what the second part of 1 says, which prohibits extraction of elements FROM conjuncts). The other part of the CSC, the 'conjunct constraint' (i.e. the first part of 1, prohibiting extraction OF conjuncts themselves), is a different issue. Yatabe (2003) discusses some scrambling data in Japanese that suggest that Japanese nominal coordination does not obey the conjunct constraint.

[2]Throughout the paper, we mark 'CSC violation' examples with # instead of * in conformity with our claim that their unacceptability is due to pragmatic infelicity. ? is used for mildly degraded but basically acceptable examples. The underscore (_) for missing material is purely for expository purposes without any theoretical implications.

[3]In what follows, we use the terms 'CSC patterns' and 'CSC effects' to refer to the DESCRIPTIVE generalization of the sort exemplified by (2) and 'CSC' to refer to a SYNTACTIC constraint that is meant to capture this generalization.

[4]Na and Huck's (1992) work on English and Korean CSC data is a notable exception, and is an important precursor for the present work. However, as pointed out by Kehler (2002), their proposed condition is applicable to asymmetrical coordination only and needs to be supplemented with a separate principle for dealing with symmetrical coordination (in fact, it seems that Na and Huck (1992) take the CSC as a syntactic constraint to be responsible for it). Moreover, they do not take into account the difference between English extraction constructions and extraction-like constructions in Korean and simply treat the latter as a case of extraction. Thus, even though the set of data that Na and Huck (1992) discuss overlap with ours to a certain extent, the ultimate conclusions we draw are quite different from theirs.

[5]The following glosses are used in this paper: ACC = accusative, COP = copula, DAT = dative, DECL = declarative, I = *-i*, GEN = genitive, KO = *-ko*, NEG = negation, NMLZ = nominalizer, NOM = nominative, NPST = nonpast, PASS = passive, PAST = past, PL = plural, PROG = progressive, Q = interrogative, REL = relativizer, TE = *-te*, TOP = topic.

[6]This does not exclude a possibility of analyzing these constructions in terms of a filler-gap

dependency mechanism in the syntax. But the burden of proof is on those who would maintain this latter assumption to explain the difference among the relevant constructions across languages as to their island (in)sensitivity.

[7]The distinction between coordination and subordination is a hairy issue (see Haspelmath 2007 for some relevant discussion), where some authors take semantic properties to be (at least partly) relevant for the distinction. However, given the logic of the syntactic approach, it should be clear that what one should be looking for here—so as to avoid circularity of argument—is purely syntactic evidence. Note once again in this connection Ross's (1967) failure to provide independent criteria for the notion of coordination in English with respect to the 'asymmetrical' coordination cases, which has been criticized in much later work (Schmerling 1975, Lakoff 1986, Kehler 2002).

Movability and repeatability are sometimes used as criteria for coordination, but we do not rely on these tests here. The movability test is inapplicable for Japanese and Korean since these languages are verb-final and thus do not allow subordinate clauses to appear to the right of the main clause. As for repeatability, it is not clear whether this test really pertains to the SYNTACTIC difference between coordination and subordination (note that certain subordinate clauses like temporal adverbial clauses can be repeated multiple times as long as they do not induce semantic anomaly).

[8]This is of course a simplification, given the well-known examples of unlike category coordination (Sag et al. 1985, Bayer 1996).

[9]We choose to speak of 'semantic' relations here and throughout the paper mainly to be consistent with the terminology in the previous literature (they could instead be called 'pragmatic relations'). They are semantic relations in the sense that these relations are about the semantic contents of the clauses. We take these relations themselves to be inherently pragmatic in nature (hence, our account of the CSC patterns is a pragmatic account).

[10]A reviewer raises the possibility that syntactic constraints may be ameliorated by pragmatic factors. However, even granting this possibility, a syntactic account of the patterns exhibited by the tensed *-ko* construction alluded to above does not seem plausible. On such an account, one would in effect have to admit that among the five constructions from the three languages discussed here,

ONLY Korean tensed *-ko* instantiates syntactic coordination, to which the CSC is applicable. This alone makes the status of the CSC as a syntactic constraint quite dubious. Moreover, one would have to make recourse to the pragmatic principles to account for the amelioration effects after all. By contrast, the pragmatic approach we argue for below can account for all the relevant patterns with pragmatic principles alone. Overall simplicity criteria is thus in favor of our approach.

Note also that the pattern exhibited by the tensed *-ko* construction is different from the more typical cases of amelioration of (what are standardly taken as) syntactic constraints such as the effects observed with resumptive pronouns. Resumptive pronouns are 'licensed' by a processing-oriented need to make the interpretation of the sentence easier in an island violation context. The examples in (27) are very different in nature in that they do not involve any such syntactically complex construction, and thus, a competition between processing-oriented factors and hard grammatical constraints is not an issue. This, too, suggests that what we see in (27) is not a case of a syntactic constraint ameliorated by extra-grammatical factors.

[11]Another option would be to maintain that a filler-gap analysis is viable for Japanese and Korean displacement constructions too, despite their island insensitivity. However, as we have noted above, such an approach lacks independent motivation, and calls for an explanation for the different island (in)sensitivity effects that the relevant languages exhibit.

[12]From this description, it should be clear that, in Kehler's terminology, the general category of Resemblance is what corresponds to the notion of semantic 'parallel' relation that we have used above to describe the ATB pattern in the CSC data. For Kehler, the notion of Parallel is a more specific subcategory of Resemblance. In what follows, we stick to Kehler's terminology.

[13]As already noted, in attested examples from real text the boundary between Contiguity and Cause-Effect relations is sometimes difficult to delineate. For example, we have categorized (18b) and (19b) in Appendix B as instances of the Contiguity relation, but depending on the interpretation, they seem to be construable in the Cause-Effect relation, too.

[14]It is often observed in the literature that, in English, the Contiguity relation and the Cause-Effect relation allow for extraction out of the final and nonfinal conjuncts only, respectively, as exemplified

by the following examples.

(i) a. ??Paul is the guy who Spiro [told a joke] and [infuriated __]. (Schmerling 1972)

b. #By which route did he [go __] and [buy the liquor at the store]? (Kehler 2002)

There does not seem to be any analogous constraint in Japanese and Korean. For example, (ii) is (almost) a direct translation of (ia) into Japanese and it is perfectly natural.

(ii) Paul-wa Spiro-ga [zyoodan-o it-te] [__ okorase-ta] otoko-da.
Paul-TOP Spiro-NOM joke-ACC say-TE infuriate-PAST man-COP
'Paul is the guy who Spiro told a joke and infuriated.'

In the following attested example of Korean with the Contiguity relation, relativization takes place from the first clause.

(iii) [pam-ey __ palu(#-ess)-ko] [ca-n] patiloshyen
night-at apply-PAST-KO sleep-REL body.lotion
'the body lotion that I applied at night and slept'
twitter.com/UHJINHEE/status/131873657151700992

We are not entirely sure what to make of the data in (i) and the divergence from this pattern in Japanese and Korean, but perhaps the reason that Japanese and Korean exhibit a more flexible pattern here is due to the fact that the displacement constructions in the two languages are generally more flexible (in, for example, allowing for gapless variants) than English extraction constructions. We leave a more careful assessment of both the relevant facts and their explanation for future research.

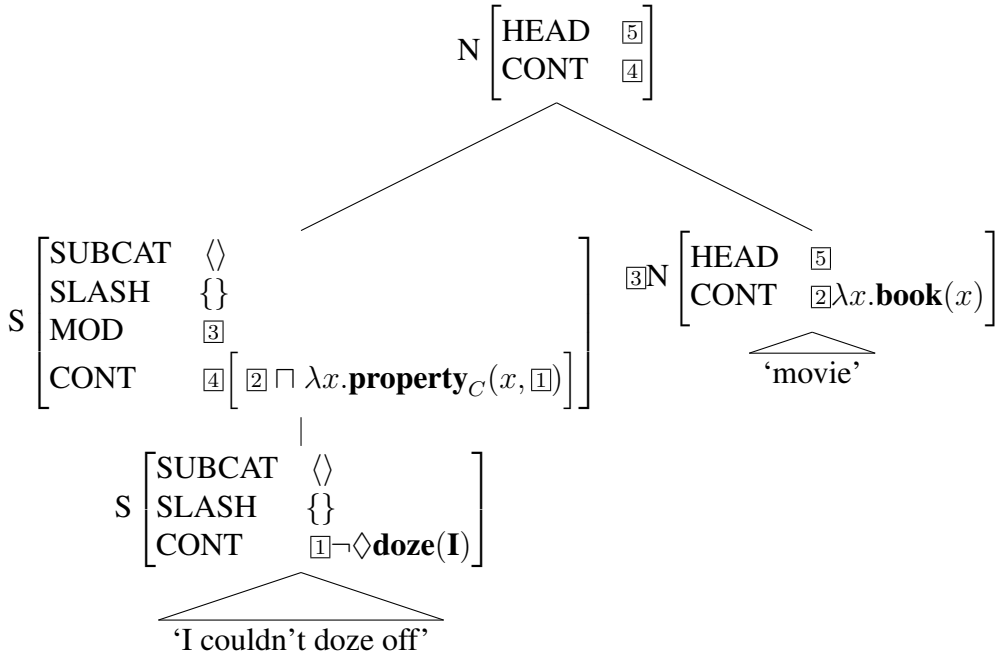
[15]We speculate that this is related to the fact that an overt tense morpheme appears in the first clause in this construction. Because of this, the events of the two clauses are independently anchored in time, rather than sharing a single reference time. The temporal independence of the constituent events is one of the properties that distinguish the Resemblance discourse relation from the non-Resemblance ones, and hence it does not seem totally unreasonable to assume that an affinity to this discourse relation has somehow been grammaticalized as part of the conventional

meaning of this construction. A more detailed investigation on this issue is left for future work. See Lee & Tonhauser 2010 for some discussion about the temporal interpretations of the *-te*/*-i*/*-ko*-constructions in Japanese and Korean.

[16]The tendency for conventionally determined meanings to have a much more robust effect than purely pragmatic information on the interpretation of (partly) 'context sensitive' expressions is not an isolated phenomenon. For example, it has been observed (cf. Kennedy & McNally 2005, Kennedy 2007) that the interpretation of gradable adjectives (such as *tall* and *big*) is generally context-dependent, but that endpoint-oriented adjectives like *straight* and *pure* have a default association with the conventionally determined endpoints (so that *straight* means 'completely straight'). This default association with the scalar endpoints cannot be overridden by purely contextual factors, but it can be overridden by linguistically specified standards in constructions such as comparatives (e.g. *This rod is straighter than that one*).

[17]Thus, in cases involving gapless relatives, for two clauses to independently count as well-formed property descriptions isn't enough for guaranteeing that they can be conjoined to yield a coherent property description as a whole. In this sense, pragmatic factors play a much more prominent role than in the case of ordinary relative clauses, for which syntactic parallels between the two clauses in terms of argument structure seems enough to satisfy a Resemblance relation (note that, unlike (51b), *[__ kuroku-te] [__ karui] undoogutu* 'black and light sports shoes' is fully acceptable).

Special Matter



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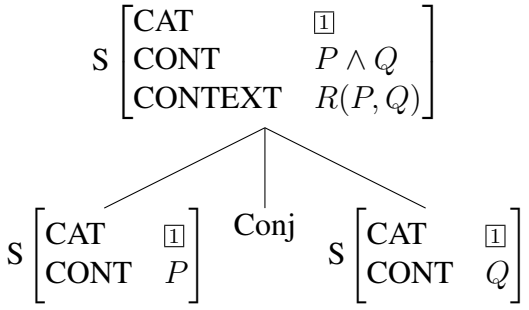

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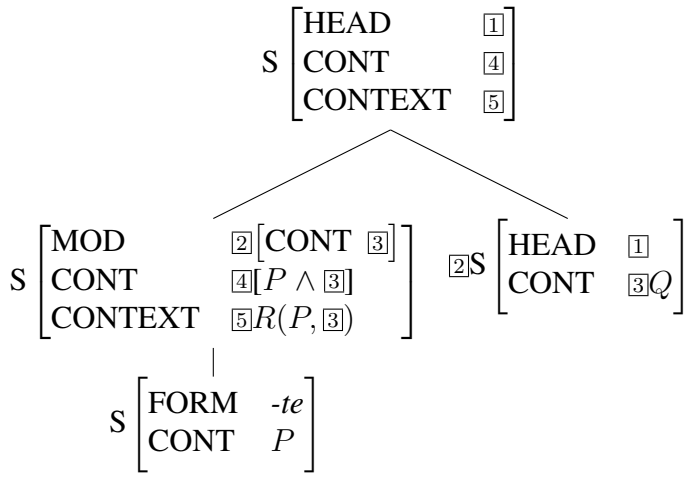

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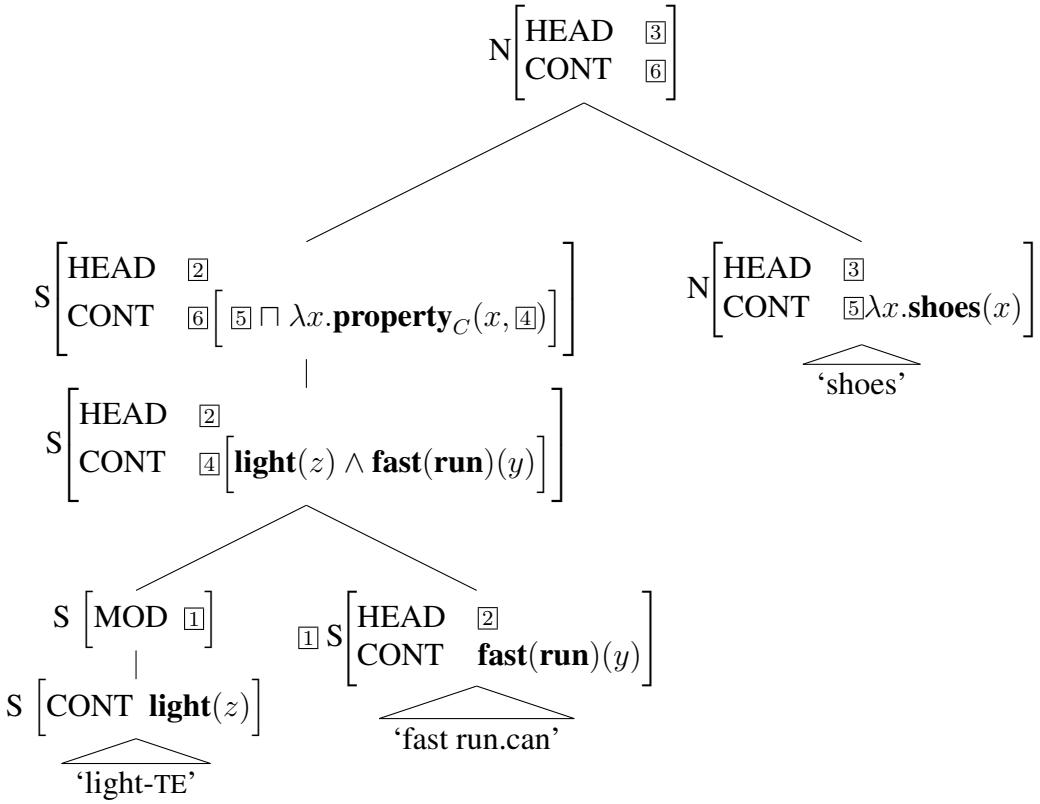

<TREE FOR EXAMPLE (22)>

Appendix

A. ISLAND VIOLATION AND GAPLESS EXAMPLES WITH TOPICALIZATION AND CLEFT.

A.1 TOPICALIZATION.

ISLAND VIOLATION.

(1) a. Sono sinsi-wa [__ ki-te i-ru] yoohuku-ga kitanai.
that gentleman-TOP wear-TE PROG-NPST clothes-NOM dirty.NPST
'As for that gentleman, the clothes that he is wearing are dirty.'

b. Ku sinsa-nun [__ ip-koiss-nun] os-i telep-ta.
that gentleman-TOP wear-PROG-REL clothes-NOM dirty-NPST.DECL
'As for that gentleman, the clothes that he is wearing are dirty.'

(2) a. Sono zyosei-wa [__ sin-da ato] mina-ga kanasin-da.
that woman-TOP die-PAST after all-NOM miss-PAST
'As for the woman, everybody missed her after she died.'

b. Ku yeca-nun [cwuk-un __ hwu-ey] motwu-ka kuliwueha-yess-ta.
that woman-TOP die-REL after all-NOM miss-PAST-DECL
'As for the woman, everybody missed her after she died'

GAPLESS EXAMPLES.

(3) a. Sono eiga-wa watasi-de-sae inemuri-deki-nakat-ta.
that movie-TOP I-COP-even doze.off-can-NEG-PAST
'As for that movie, (it was too exciting that) even I could not doze off (by watching it).'

b. Ku yenghwa-nun na-to col swu-ka ep-ess-ta.
that movie-TOP I-even doze.off possibility-NOM not.exist-PAST-decl
'As for that movie, (it was too exciting that) even I could not doze off (by watching it).'

A.2. CLEFT.

ISLAND VIOLATION.

(4) a. [__ Ki-te i-ru] yoohuku-ga kitanai-no-wa sono sinsi-da.
wear-TE PROG-NPST clothes-NOM dirty.NPST-NMLZ-TOP that gentleman-COP
'It is that gentleman whose clothes are dirty.'

b. [__ Ip-koiss-nun] os-i tele-un salam-un ce
wear-PROG-REL clothes-NOM dirty-REL person-TOP that
sinsa-i-ta.
gentleman-COP-NPST.DECL
'It is that gentleman whose clothes are dirty.'

(5) a. [__ Sin-da ato] mina-ga kanasin-da-no-wa sono zyosei-da.
die-PAST after all-NOM miss-PAST-NMLZ-TOP that woman-COP
'It is that woman who everybody missed after she died.'

b. [__ Cwuk-un hwu-ey] motwu-ka kuliwueha-n salam-un ce
die-REL after all-NOM miss-REL person-TOP that
yeca-i-ta.
woman-COP-NPST.DECL

'It is that woman who everybody missed after she died.'

GAPLESS EXAMPLES.

(6) a. Watasi-de-sae inemuri-deki-nakat-ta-no-wa sono eiga-da.
I-COP-even doze.off-can-NEG-PAST-NMLZ-TOP that movie-COP
'It's that movie that (was too exciting that) even I could not doze off (by watching it).'

b. Na-to col swu-ka ep-ess-ten kes-un palo ku
I-even doze.off possibility-NOM not.exist-PAST-REL thing-TOP the.very that
yenghwa-i-ess-ta.
movie-COP-PAST-DECL
'It's that movie that (was too exciting that) even I could not doze off (by watching it).'

A.3. *Wh*-QUESTIONS.
ISLAND VIOLATION.

(7) a. [Dare-ga ki-te i-ru] yoohuku-ga kitanai-no?
who-NOM wear-TE PROG-NPST clothes-NOM dirty.NPST-Q
'Whose clothes are dirty?'

b. [Nuka ip-koiss-nun] os-i telep-ni?
who wear-PROG-REL clothes-NOM dirty-NPST.Q
'Whose clothes are dirty?'

(8) a. [Dare-ga sin-da ato] mina-ga kanasin-da-no?
who-NOM die-PAST after all-NOM miss-PAST-Q
'Who did everybody miss after s/he died?'

b. [Nuka cwu-un hwu-ey] motwu-ka kuliwueha-yess-ni?
who die-REL after all-NOM miss-PAST-Q
'Who did everybody miss after s/he died?'

B. CSC PATTERNS IN TOPICALIZATION AND CLEFT.
B.1. TOPICALIZATION.
PARALLEL.

(9) a. Tugi-no sakuhin-wa [__ kanozyo-ga sakkyokusi/sakkyokusi-te] [__ kare-ga
next-GEN piece-TOP she-NOM compose.I/compose-TE he-NOM
sakusisi-ta].
write.lyrics-PAST
'The next piece is one which was composed by her and whose lyrics were written by him.'
kobepier.seesaa.net/article/270117621.html

b. #Tugi-no sakuhin-wa [kanozyo-ga syoosetu-o kaki/kai-te] [__ kare-ga
next-GEN piece-TOP she-NOM novel write/I/write-TE he-NOM
sakusisi-ta].
write.lyrics-PAST
intended: 'The next piece is one such that she wrote a novel and whose lyrics were written by him.'

(10) a. Seylyeysik-un [Underwood-ka __ ciplyeyha-yess-ko/ciplyeyha-ko]
baptism-TOP Underwood-NOM lead-PAST-KO/lead-KO
[Apenceller-ka __ pocwaha-yess-ta].
Apenceller-NOM assist-PAST-DECL
'As for the baptism, Underwood led it and Apenceller assisted it.'
blog.naver.com/PostView.nhn?blogId=sticktojesus&logNo=140098314164

b. #Seylyeysik-un [Underwood-ka misa-lul ciplyeyha(-yess)-ko] [Apenceller-ka __
baptism-TOP Underwood-NOM mass-ACC lead-PAST-KO Apenceller-NOM
pocwaha-yess-ta].
assist-PAST-DECL
intended: 'As for the baptism, Underwood led the mass and Apenceller assisted it.'

NONPARALLEL.
(The a.-examples instantiate the Cause-Effect relation and the b.-examples, the Contiguity relation.)

(11) a. Osiri-ya kosi-no seruraito-wa [toreeningusi-te/toreeningusi] [__ gekitaisi-masyoo].
hip-and waist-GEN cellulite-TOP exercise-TE/exercise.I drive.away-let's
'As for cellulite at the hip and waist, let's drive it away by doing exercises.'
www.emg-ltd.com/

b. Niko-wa [anpusi-te/anpusi] [__ ensoosi-ta hooga
niko-TOP memorize.music-TE/memorize.music.I play
ii-nodesyooka]?
good-COP.Q
'As for niko, would it be more desirable to play it without music?'
kinugen.cyada.org/qa/ro10.html

(12) a. Haciman salang-i tamkyeiss-nun yak-un amwuli sseto [__
but love-NOM be.contained-REL medicine-TOP no.matter.how bitter
talkhomhakey mek(-#ess)-ko] [pyeng-i na-ulswuiss(-ess)-ta].
sweetly take-PAST-KO disease-NOM get.better-can-PAST-DECL
'However, as for medicine with love, one can take it well and get better, no matter how bitter it is.'
www.ybrt.cn/board.php?board=culture_03&act=view&no=174

b. Patiloshyen-un [shyaweha(-#yess)-ko] [__ pallacwu-si-myen]
body.lotion-TOP take.a.shower-PAST-KO apply-HONORIFIC-if
koaynchanh-ketunyo.
be.okay-NPST.DECL
'As for a body lotion, it is okay if you take a shower and apply it.'
jebi.com/web_read/read.php?no=571647&g=571648&sw=%CC%F9%EF%BD&sc=

AMELIORATION EXAMPLES WITH THE TENSED *-ko* CONSTRUCTION.

(13) a. ?Ku yak-un [manhun yeca-tul-i __ mek-ess-ko] [*kulase* kenkang-ul
that medicine-TOP many woman-PL-NOM take-PAST-KO as.a.result health-ACC
mangchi-ess-ta].
ruin-PAST-DECL

'As for that medicine, many women took it and as a result ruined their health.'

b. ?Ku loshyen-un [Chelswu-ka onul achim-ey shyawue-lul ha-yess-ko] [*kulikonase*
that lotion-TOP Chelswu-NOM today morning-at shower-ACC do-PAST-KO after.that
__ pall-ass-ta].
apply-PAST-DECL
'As for that lotion, Chelswu took a shower this morning and then applied it.'

GAPLESS.

(14) a. Tasikani ranningu-syuuzu-wa [__ karuku-te/karuku] [hayaku hasireru]-kedo
surely running-shoes-TOP light-TE/light.I fast run.can-though
'Though running shoes are light and one can run fast by wearing them . . . '
kevin99.cocolog-nifty.com/mydiet/2010/09/z750r-7b4d.html

b. Yawarakai onsitu-wa [rirakkusu-deki-te/rirakkusu-deki] [tukare-nai]-no-ga
soft sound-TOP relax-can-TE/relax-can get.tired-NEG-NMLZ-NOM
suki-desu.
like-COP
'I like the soft sound which is relaxing and easy on the ear.'
bbs.kakaku.com/bbs/keyword/%92n%88%E6%81E%8C%F0%92%CA_%89%B9%8E%BF/BBSTabNo=93/

(15) a. Ilehan cemphe-nun [__ kapyep-ko] [ku pwuphi-ka cak-ta.]
this.sort.of jacket-TOP light-KO that volume-NOM small-NPST.DECL
'As for this sort of jackets, they are light and their volume is small.'
adapted from korean.people.com.cn/85872/15247384.html

b. Lim-ssi-nun [mom-i nallyepha(-yess)-ko] [sengkyek-i chapwunha-yess-ta].
Lim-Mr.-TOP body-NOM nimble-PAST-KO personality-NOM calm-PAST-DECL
'As for Mr. Lim, his body was nimble and his personality was calm.'
blog.daum.net/119hero/4565050

B.2. CLEFT.
PARALLEL.

(16) a. Onazi iti-taikai-de [__ seika-o tomosi/tomosi-te] [__ kin-medaru-o
same one-tournament-at torch-ACC light.I/light-TE gold-medal
kakutokusi-ta]-no-wa kanozyo-dake-dearu.
get-PAST-NMLZ-TOP she-only-COP
'It's only her that lit up the torch and won a gold medal in the same tournament.'
ja.wikipedia.org/wiki/%E3%82%AD%E3%83%A3%E3%82%B7%E3%83%BC%E3%83%BB%E3%83%95%E3%83%AA%E3%83%BC%E3%83%9E%E3%83%B3

b. #Onazi iti-taikai-de [__ seika-o tomosi/tomosi-te] [Maikeru Ferupusu-ga
same one-tournament-at torch-ACC light.I/light-TE Michael Phelps-NOM
kin-medaru-o kakutokusi-ta]-no-wa kanozyo-dake-dearu.
gold-medal get-PAST-NMLZ-TOP she-only-COP
intended: 'It's only her that lit up the torch and Michael Phelps won a gold medal in the same tournament.'

(17) a. Nay-ka [__ kacang cohaha-yess-ko/cohaha-ko] [__ manhi ha-n] kes-un
I-NOM most like-PAST-KO/like-KO a.lot do-REL thing-TOP
pi-poing-i-ya.
B-Boying-COP-NPST.DECL
'It is B-Boying that I liked most and did a lot.'
https://topclass.chosun.com/board/view.asp?tnu=200806100014&catecode=L&cPage=1

b. #Nay-ka [__ kacang cohaha(-yess)-ko] [wuntong-lul manhi ha-n] kes-un
I-NOM most like-PAST-KO exercise-ACC a.lot do-REL thing-TOP
pi-poing-i-ya.
B-Boying-COP-NPST.DECL
intended: 'It is B-Boying that I liked most and did exercise a lot.'

NONPARALLEL.
(The a.-examples instantiate the Cause-Effect relation and the b.-examples, the Contiguity relation.)

(18) a. Konkai [Itano-to Maeda-ga taityoohuryoo-de daunsi/daunsi-te] [__
this.time Itano-and Maeda-NOM sickness-for back.out.I/back.out-TE
tyuusisi-ta]-no-wa, ... akusyu-kai.
cancel-PAST-NMLZ-TOP handshake-event
'It was the handshake event that Itano and Maeda fell down for sickness and was cancelled this time.'
r25.yahoo.co.jp/fushigi/jikenbo_detail/?id=20110209-00005328-r25

b. [Sono ikutuka-ni taizaisi-te/taizaisi] [__ zikkan-si-ta]-no-wa doko-mo tokai-no
that some-DAT stay-TE/stay.I feel-do-PAST-NMLZ-TOP all city-GEN
hoteru-to-wa mattaku tigau kuturogikan-ni miti-te iru-koto.
hotel-from-TOP completely different relaxing.atmosphere-DAT full-TE be-NMLZ
'What I realized when I stayed at some of these hotels was that they were full of relaxing atmosphere which was completely different from hotels in the urban area.'
hellobc-sp.jp/okanagan/10.html

(19) a. [Kim Congkwuk-i __ po(#-ass)-ko] [keui kicelha-lppenha-n] kes-un ku
Kim Congkwuk-NOM see-PAST-KO almost faint-come.close.to-REL thing-TOP that
kwaca khalloli-i-yess-ta.
snack calorie-COP-PAST-DECL
'It was the calorie of that snack that Kim Congkwuk saw and almost fainted.'
adapted from article.joinsmsn.com/news/article/article.asp?total_id=8425158&ctg=1502

b. [Nay-ka __ manhi mek(#-ess)-ko] [cala-n] kes-un ocinge-i-yess-ta.
I-NOM a.lot eat-PAST-KO grow.up-REL thing-TOP squid-COP-PAST-DECL
'It was squid that I ate a lot and grew up.'
blog.daum.net/2dayhappy/3

AMELIORATION EXAMPLES WITH THE TENSED *-ko* CONSTRUCTION.

(20) a. [[Manhun yeca-tul-i __ mek-ess-ko] [*kulase* kenkang-ul mangchi-n]]
many woman-PL-NOM take-PAST-KO as.a.result health-ACC ruin-REL
kes-un ku yak-i-ess-ta.
thing-TOP that medicine-COP-PAST-DECL
'It was that medicine that many women took and as a result ruined their health.'

b. [[Chelswu-ka onul achim-ey shyawue-lul ha-yess-ko] [*kulikonase* __ pall-un]]
Chelswu-NOM today morning-at shower-ACC do-PAST-KO after.that apply-REL
kes-un ku loshyen-i-ess-ta.
thing-TOP that lotion-COP-PAST-DECL
'It was that lotion that Chelswu took a shower this morning and then applied.'

GAPLESS.

(21) a. [__ Karuku-te/karuku] [hayaku hasireru]-no-wa kotira-desu.
light-TE/light.I fast run.can-NMLZ-TOP this-COP
'This is the one that is light and such that one can run fast.'
detail.chiebukuro.yahoo.co.jp/qa/question_detail/q1475386994

b. [Hayaku hasire-te/hasire] [tukare-nai]-no-wa kore-da.
fast run.can-TE/run.can.I get.tired-NEG-NMLZ-TOP this-COP
'This is the one such that one can run fast and not get tired.'

(22) a. [__ Kapyep-ko] [phyenanhakey talli-lswuiss-nun] kes-un i
light-KO comfortably run-can-REL thing-TOP this
sinpal-i-ta.
shoes-COP-NPST.DECL
'This pair of shoes is the one that is light and such that one can run comfortably by wearing them.'

b. [Ppalli talli-swuiss-ko] [suipkey phikonhayci-cianh-nun] kes-un palo i
quickly run-can-KO easily get.tired-NEG-REL thing-TOP the.very this
sinpal-i-ta.
shoes-COP-NPST.DECL
'This pair of shoes is the one such that one can run fast and does not get tired easily.'