On Extracting from Asymmetrical Structures

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0. In this paper we will attempt to provide a principled account of various exceptions to the Coordinate Structure Constraint in English and will relate these exceptions to similar phenomena in Korean. We will show that an adequate explanation for these exceptions must make reference to the role that the sentences play in discourse and, in particular, to the informational status of the clauses which they consist of.

We propose, then, that the Coordinate Structure Constraint is not simply a constraint on the syntactic form of conjunctions in English, but rather to a large extent a consequence of apparently universal limitations on filler-gap relationships in discourse-level structures.

1. Ross's (1967:89) Coordinate Structure Constraint (1) was designed to prohibit the generation of sentences like (2)-(3), where material has been extracted from a single conjunct:

(1) Coordinate Structure Constraint (CSC)
In a coordinate structure, no conjunct may be moved, nor may any element contained in a conjunct be moved out of that conjunct.

(2) *Which sofa will he put the chair between some table and?
(3) *Which table will he put the chair between and some sofa?

But Ross also noted some obvious counterexamples to the CSC, among them (4):

(4) Here's the whiskey I went to the store and bought.

In (4), an element has been extracted from the second of two conjuncts, apparently in violation of the CSC. Ross's tentative conclusion\(^1\) was that such sentences do not contain coordinate structures and therefore should not be subject to the CSC. But since Ross could provide no independently motivated distinction between coordinate and noncoordinate conjunction ("I know of no other test for coordinate structure than the one [the CSC] provides" (p. 94)), his conclusion was in danger of being circular: coordinates in this view are just those structures that obey the CSC.

Further counterexamples to the CSC were discussed by Goldsmith (1985), who noticed the following:

(5) a. How many lakes can we destroy and not arouse public antipathy?
b. How much can you drink and not end up with a hangover the next morning?
Goldsmith suggested that, although the canonical interpretation of the coordinating conjunction is the logical connective $\land$, the and of (5) rather has a meaning which may be paraphrased as "and nonetheless." This construction is discussed again in Lakoff (1986), where an analysis of exceptions to the CSC based on Fillmore (1978) and (1985), among others) is given. Lakoff points out that the conjunctions in sentences like (4) differ from those in sentences like (5) in that the former describe what might be termed "a natural course of events," while the latter describe a course of events that is counter to natural expectation. He calls the "scenarios" involved here Type A and Type B respectively and proposes the following restriction on the CSC:

(6) The Final Conjunct Condition (FCC)

Only scenarios of Type B prohibit extraction from the final conjunct.

As Lakoff notes, this condition accounts for the apparently mysterious fact that the following two sentences have contradictory interpretations:

(7) What kind of herbs can you eat and not get cancer?
(8) What forms of cancer can you eat herbs and not get?

(7), where the extraction is from the first conjunct, implies that if you eat herbs you are likely to get cancer, while (8), where the extraction is from the second conjunct, implies that eating herbs will prevent cancer. The FCC can be seen to account for this oddity since it correctly predicts that the interpretation of (7), but not that of (8), entails a Type B scenario.

However, as Lakoff notes, there is a third type of scenario, in which the relationship between the contents of the conjuncts is essentially cause-and-effect. For example, in (4), going to the store is not taken to cause the buying of something, but, in (9) a causal interpretation is clearly suggested:

(9) That's the stuff that the guys in Caucasus drink and live to be a hundred.

Lakoff calls this third type of scenario Type C, and proceeds to say that "there is a difference in extractability, since A-scenarios require extraction from the final conjunct while C-scenarios do not" (p. 156). Note, however, that (9) should be ungrammatical under the FCC since it does not suggest a Type B scenario even though extraction has occurred in the first conjunct. But, even if (6) can be revised satisfactorily, the problem of accounting for the principle itself would still remain. That is, why should the application of the CSC be sensitive to the meaning of the conjuncts in just that manner?

2. Themes and Scenarios
2.1. The Domain of Inquiry

Before attempting to answer the question raised at the end of the previous section, we should make clear that we will be primarily concerned in this chapter with a certain subset of what have been called the "asymmetric" conjunctions.
Logical conjunction (/\) is symmetric in the sense that A/\B is true under the same circumstances as is B/\A, and whatever can be inferred from A/\B can also be inferred from B/\A. Thus, (10 a-b) are symmetric, whereas (11a-b) are not (indeed, (11b) is not entirely comprehensible without some nonstandard assumptions about the mobility of couches):

(10)  a. Jonathan is a kind of apple, and Bosc is a kind of pear.
     b. Bosc is a kind of pear, and Jonathan is a kind of apple.
(11)  a. Nero came into the office and sat down on the couch
     b. Nero sat down on the couch and came into the office.

As demonstrated by Schmerling (1975), there are in English several different kinds of asymmetric conjunction; to the previously discussed constructions involving Type A, B, and C scenarios (12)-(14), she adds the sentences in (15)-(21):

(12) I went to the store and bought some whiskey.
(13) I can drink any amount of this and not get drunk.
(14) They eat that stuff and live to be a hundred.
(15) I had suspected that the solution would turn out to be elusive, and
     I was right.
(16) Joan sings ballads and accompanies herself on the guitar.
(17) I left the door open and the cat got in.
(18) She's gone and ruined her dress now.
(19) John was being clever and taking the files with him.
(20) I've got to try and find that screw.
(21) Roy called a secret meeting and offended Bob and Jeff.

Asymmetric conjunctions can be divided into two categories: those which may acceptably violate the CSC ((12)-(14) and (18)-(21)), and those which may not ((15)-(17)). What we will be concerned with here are those asymmetric conjunctions that may acceptably violate the CSC by virtue of the scenarios they imply. As we will see, this excludes conjunctions like (18) and (20), which permit extraction for reasons that do not appear to be related to the type of scenarios involved.4

There is a further syntactic feature shared by these extractable asymmetric conjunctions: they all demand VP conjunction. That is, versions of these sentences in which the subjects of the second conjuncts are retained differ both syntactically and semantically from the subject deletion versions (Schmerling, ibid.). Compare, for instance, (12) -- repeated here -- with (22):

(12) I went to the store and bought some whiskey.
(22) I went to the store and I bought some whiskey.

Unlike (12), (22) does not necessarily imply that I bought the whiskey at the particular store referred to in the first conjunct. And of course the CSC holds for (22):

(23) *the whiskey which I went to the store and I bought
Similarly, the extractable asymmetric conjunctions do not allow the word both to precede the first conjunct (Schmerling, ibid.). As Schmerling points out, (12) is understood differently from (24), i.e., they are not paraphrases of each other:

(24) I both went to the store and bought some whiskey.

(24), like (22) and unlike (12), describes two separate events that need not be connected.

2.2. Scenarios and the Organization of Information

2.2.1. We know that a crucial design feature of human language is the capacity to entertain the content of more than a single proposition at any one time -- within the bounds of a single syntactic sentence. Sometimes two largely unrelated propositions are simply brought together, in which case they may be realized syntactically as a symmetric conjunction. But what is largely responsible for the creativity of language, as we use and experience it, is that propositions can themselves be employed as arguments or modifiers of other propositions. Furthermore, even unembedded propositions that are strung together in the course of a discourse do not all have equal status, and some may serve to set the stage for, or otherwise modify, others.

Consider a sentence which is normally perceived as containing a symmetrical coordinate and:

(25) Bobbie writes novels and raises goats.

This sentence, when added to a discourse, adds two pieces of information: that Bobbie writes novels and that she raises goats. Both clauses not only are asserted, but also contribute information of equal weight -- in neither case does one convey information that is, on the face of it, pragmatically secondary to, or dependent upon, the other. Now consider a sentence involving a scenario of Type A:

(26) I went to the store and bought some whiskey.

Unlike (25), (26) under normal circumstances asserts two propositions of unequal importance. Just as an adverbial might, the first conjunct describes an auxiliary action that was taken in preparation for the primary action described in the second conjunct, and also indicates the location where that primary action took place. Indeed, there are obvious paraphrases of (26) in which the first clause is syntactically realized as an adverbial, and which differ from (26) only in that the adverbial clause is not asserted. In this sense, (26) involves only one piece of primary information -- I bought some whiskey -- despite the fact that there are two syntactic conjuncts.

A test for the primacy of the information conveyed by a clause is its optionality in the discourse: if the clause can be deleted without seriously distorting the message expressed, then we will say that the clause is secondary. For example, to delete the information that Bobbie raises goats from (25) would
be to seriously distort the message of that sentence, but the message of (26) would by and large remain intact if the first conjunct of the VP were removed. Similarly, (7) is primarily a question about what kinds of herbs you can eat, just as (8) is a question about what kinds of cancer you can avoid getting. We shall say that, relative to a discourse, conjunctions involving conjuncts conveying propositions of unequal weight in that discourse are noncoordinate. Given this, (26) is asymmetric and noncoordinate, whereas (25) is symmetric and coordinate.

We should emphasize that although the symmetric-asymmetric axis is defined by standard logical tests (assisted by Gricean conversational principles), the coordinate-noncoordinate axis is only defined over discourse structures. Thus, the question of whether a certain asymmetric conjunction is also noncoordinate can only be decided by reference to the role the sentence plays in a discourse and, therefore, is not determinate. In what follows, we will sometimes speak as though a particular conjunction "is" noncoordinate in a certain way independently of context, but it should be kept in mind that there are, instead, only more or less plausible interpretations.

2.2.2. With these caveats, we can now see that constructions involving the Type B and the Type C scenarios exhibit asymmetric, noncoordinate conjunction of the same kind. Consider (27), which involves a Type B scenario:

(27) You can eat as much beansprouts as you want and not get fat.

In the most easily imaginable context, the primary assertion of this sentence is quite clearly that you can eat as much beansprouts as you want and not that you cannot get fat. The first clause is primary and the second, like an adverbial, adds information that qualifies the first. The following examples work in the same way:

(28) Jean can eat an entire cheesecake and not gain an ounce.
(29) Jean can sunbathe all day long and not get a burn.

In (27) through (29) -- as in Type B constructions generally -- the second conjunct is secondary and the first is primary: the primary assertion of the structure as a whole is conveyed by the first conjunct. Consider now the following Type C structure:

(30) Babies always eat that and then get sick.

As in the Type B structure, the primary clause here is the first conjunct and the second conjunct is semantically secondary to the first. As was mentioned in the previous section, there is a sense in which Type C scenarios are also similar to Type A scenarios, since they both involve what might be considered a "natural flow of events." Thus, we might note now that the main difference between the two (beyond the fact that only Type C depicts a cause-effect connection) is that in a Type A scenario the first conjunct is looked upon as a prelude to the primary (second) conjunct, whereas in a Type C scenario the second conjunct is regarded as an aftermath of the primary (first) conjunct.
What this means is that sentences should exist that are subject to either understanding, and indeed this is the case:

(31) Terry ran in these shoes and hurt her knee.

In the Type A reading of (31), Terry hurt her knee (perhaps intentionally) because she wore these shoes. The more obvious, Type C reading focusses instead on the wearing of the shoes and adds that she hurt her knee as a consequence. 6

2.2.3. One question that arises at this point is how to distinguish between instances of asymmetric conjunction that are interpreted as involving a loose cause-effect relationship between the conjuncts, and those that depict a true Type C scenario. For example, in the most easily imaginable contexts, each of the following sentences seems to imply some kind of causal connection between the two clauses:

(32) Jean went off to Las Vegas for the weekend and cannot afford to get herself a new rug.
(33) I rented out the cottage for the summer and don't have a place to stay in the area myself.
(34) I slept well last night and don't have a headache anymore.

But these sentences all fail the primacy test: you cannot delete either of the conjoined conjuncts in any of the sentences without seriously altering the meaning of that sentence. Moreover, in the case of standard Type C constructions the information provided by the two conjuncts is easily seen to be (pragmatically) crucially related. Thus, in (30), it is taken that eating what is referred to by that would almost certainly cause babies (or people generally) to get sick, and, in fact, this connection is probably a defining characteristic of the substance in question. There appears to be no such connection in (32)-(34): whatever connection there is, is at best case-specific and the implied causal relationship is vague. For example, not everyone who goes to Las Vegas for the weekend cannot afford a new rug. Indeed, the first conjunct in these cases offers, not so much a direct cause of the situation described in the second conjunct, as a context in which the latter makes sense. Furthermore, the "effect" here does not have the characterizing power that it has in the case of a true Type C construction: my not having a place to stay now does not say anything crucial about the cottage that I rented out.

Using Schmerling's both test, we would expect that, if the following are respective paraphrases of the sentences in (32)-(34), then the latter do not involve Type C scenarios:

(35) Jean both went off to Las Vegas for the weekend and cannot afford to get herself a new rug.
(36) I both rented out the cottage for the summer and don't have a place to stay in the area myself.
(37) I both slept well last night and don't have a headache anymore.

It seems to us that these and (32)-(34) are indeed respective paraphrases in the
most easily imaginable contexts in a way that (12) and (24) are not. Further, the following appear to mean pretty much exactly what (34) does:

(38) I slept well last night and I don't have a headache anymore.
(39) I slept well last night and the headache I had is gone.

There may, of course, be contexts of use in which the first conjuncts of (32)-(34) are causally related to the second conjuncts, and in these cases we would say the sentences instantiate Type C scenarios. Alternatively, there might also be no connection at all between the conjuncts and the conjunctions would then be symmetric.

2.2.4. In addition to the three types of scenarios discussed above, there is a fourth whose properties also have a bearing on the extractability of material in conjoined clauses. We will call these scenarios -- examples of which follow -- Type D:

(40) Susie was being thoughtful and helping out the old lady.
(41) Doc followed his coach's instructions and kept the runner close to first.

In this construction, the first conjunct comments on the second, which is primary. That is, (40)-(41) are almost exactly synonymous with (42)-(43), respectively, except that in the former the secondary clause is asserted:

(42) Susie was thoughtfully helping out the old lady.
(43) Following his coach's instructions, Doc kept the runner close to first.

Type D constructions are thus like Type A constructions in the location of the primary clause of the conjunction, but unlike them in the function of the secondary clause.

2.3. Condition on Asymmetric Conjunction

2.3.1. Given the discussion above, we can now rephrase -- and account for -- the Final Conjunction Constraint in this way:

(44) Condition on Asymmetric Conjunction (CAC): In any asymmetrical conjunction, if extraction is performed on a secondary conjunct, it must be performed across-the-board.\(^7\)

This condition permits non-across-the-board extraction from the second (primary) conjunct in the case of Type A and Type D constructions, as desired:\(^8\)

(45) a. Where's the Coors that Al just went to the store and bought?
   b. The story I then sat down and heard Jill tell was horrifying.
c. Clair is the one I picked up the phone and called.
d. We were looking at the remnants of the sculpture that Spalding
took a hammer and destroyed.
(46) a. Who was that little boy that Joan was being a good Girl Scout and
helping out?
b. Which baserunner was Doc following his coach's instructions and
keeping close to first?

Compare these with the following, in which material has been extracted from the
first conjunct:

(47) a. *By which route did he go and buy the liquor at the store?
b. *Into which chair can I sit and listen to him?

In the case of noncoordinate conjunctions instantiating Type B or C
scenarios, the CAC predicts correctly that extraction will be possible from the
first of the conjuncts:

(48) a. How many lakes can we destroy and not arouse public antipathy?
b. How much can you drink and not end up with a hangover the next
morning?
c. They wanted to find out how far they could streak and not get
caught.
(49) a. That's the baton that Mary tripped over and lost the race.
b. Which dish is it that people always order in this joint and then
get sick?

The following, on the other hand, violate the CAC:

(50) a. *What can we destroy many lakes and not arouse?
b. *What kind of hangover can you drink a lot and not get the next
morning?
(51) a. *How sick do people order that chili dish here and then get?
b. *How long do the guys in Caucasus drink that stuff and live?

We take the above as providing strong support for the CAC.

2.3.2. In the previous section, it was pointed out that (31), repeated below,
can have either a Type A or a Type C interpretation, depending upon the context:

(31) Terry ran in these shoes and hurt her knee.

Now observe the following pair:

(52) Which knee did Terry run in these shoes and hurt?
(53) Which shoes did Terry run in and hurt her knee?

(52), where extraction is from the second conjunct, implies a Type A scenario:
perhaps Terry deliberately ran in these shoes in order to hurt her knee. On the
other hand, in (53), where extraction is from the first conjunct, a Type C scenario is implied. So, one reason for the unacceptability of the sentences in (47), above, is that they resist both Type B and Type C interpretations, given what we know about the world. On the other hand, when the imagination is sufficiently stretched, some unlikely cases become acceptable:

(54) the blue dress that Angela broke up with her boyfriend last week and put on for us

If it is known that Angela generally loses a good deal of weight after she breaks up with a boyfriend, and can put on this particular blue dress only when she's at her thinnest (a Type A scenario), this noun phrase might be acceptably used. Under more ordinary circumstances, as a simple sequential conjunction, it constitutes a violation of the CAC and would not be allowed.

2.3.3. We would, of course, like to understand why there should be a disparity between the CSC and the CAC at all. Simply put, why isn't the CSC sufficient to predict all of the acceptable sentences of English within the relevant domain?

At least since Cattell (1976), it has been possible to interpret the CSC in terms of constraints on the relationship that obtains in syntactic structure between fillers and gaps, constraints that perhaps ultimately derive from some sort of principle of "least effort." Thus, the asking of a question presumes the possibility of a grammatically direct answer. Similarly, if a relative clause is to modify a noun, the relationship between the proposition the clause expresses and the referent of the noun should be easily computable. The evidence we have seen so far indicates that, if the constraints on conjunction derive from some measure of the computability of the filler-gap relation, then this measure must be sensitive to whether or not the gap rests in a semantically secondary clause.

As we have suggested, there may be good semantic reasons for choosing a noncoordinate conjunction in English to convey a particular message: in this way, the content of what would otherwise be a modifying clause is asserted. But we can now see why the CSC treats noncoordinates as if they were not conjunctions at all. If filler-gap matching occurs at a level at which information about the primacy of the propositions expressed by the clauses is available, then, since the secondary clauses of noncoordinates function at that level like ordinary adverbial modifiers, we'd expect that a gap in them would be no less difficult to match with a filler than if these clauses were syntactically realized as adverbial modifiers. We would also expect that different languages, with different grammatical requirements, might use different syntactic structures to convey what English employs noncoordinate conjunctions to convey. This latter expectation will be fulfilled in the next section, where we will see that Korean interprets syntactic conjunction, by and large, as logical conjunction and almost always expresses secondary clauses as syntactic adverbials.

3. The Representation of Scenarios of Types A-D in Korean

3.1. The most commonly recognized morpheme expressing VP or sentential conjunction in Korean is 꾸, as exemplified in the following:
P.-TOP yesterday arrive-PAST-and J.-TOP today come-PAST-INDIC
'Philip arrived yesterday and John came today.'

letter-ACC write-PAST-and room-ACC put in order-PAST-INDIC
'Suney wrote a letter and put the room in order.'

These instances of ko can be regarded as signalling symmetric, coordinate conjunction: the conjuncts here can be reversed without altering either the meaning of the sentences or their acceptability. It should also be noted that sentential ko-conjunctions with referentially identical subjects must undergo conjunction reduction. Compare (56), for example, with (57):

(57) Suney-nun phyonci-lul ssu-oss-ko (*Suney-nun/#kunyo-nun) pang-ul she
congliha-oss-ta.

In general, tense markers in Korean appear only on the final verb. The appearance of the tense marker on nonfinal conjuncts in (55)-(56) results in a strictly logical interpretation of the conjunction and is most naturally accompanied by the morpheme to 'also' in place of the regular case particles (attached to the relevant nouns). Thus, in (56), when the past tense morpheme oss is realized on the first verb, to usually replaces the accusative particle on pang 'room' and may also replace the one on phyonci 'letter' as well:

(58) Suney-nun phyonci-lul/to ssu-oss-ko pang-to congliha-oss-ta.
'Suney wrote a letter and she also put the room in order.'

Where the tense marker is not attached to the first verb, its clause will have the syntactic form of an adverbial, and to will not show up in either clause. In this case, it is most natural to interpret the first clause as a secondary conjunct which adverially modifies the second clause: After writing a letter, Suney then put the room in order. This temporal implication, furthermore, does not seem completely cancellable:

(59) ?Suney-nun phyonci-lul ohoo-e ssu-ko pang-ul achim-e
afternoon-in
achim-e congliha-oss-ta.
morning-in
'Suney wrote a letter in the afternoon and put the room in order in the morning.'

This is odd unless it is intended to mean that Suney wrote a letter in the afternoon and put the room in order the next morning. That is, (59) is rather more asymmetric than its English gloss suggests -- which should not be surprising if English syntax and Korean syntax cut up the semantic pie differently.
The CSC is, however, observed in Korean, as the following demonstrate:

(60) *Philip-un oce o-oss-ko Jean-i onul tochakha-oss-ta  
    TOP yesterday come-PAST-and NOM today arrive-PAST-DEC  
    'Speaking of Philip, he arrived yesterday and Jean arrived today.'

(61) *[Jean-i ssu-oss-ko pang-ul congliha-n] phyonci  
    write-PAST-and room-ACC put in order letter  
    'the letter which Jean wrote and put the room in order'

Given this, it should be of interest how Korean treats analogs in that language  
of the Type A, B, C, and D constructions in English.

3.2. The Type A scenario is expressed in Korean by a construction in which the  
first VP (the VP for the preparatory action) is followed by so instead of ko:

    store-to go-and beancurd-ACC buy-PAST-DEC  
    '(I) went to the store and bought beancurd.'

(63) Uli-nun Jean-ul manna-so i munce-lul uinonha-ul yeong-i-ta.  
    we-TOP meet-and this problem-ACC discuss-FUT plan-COP-DEC  
    'We plan to meet Jean and discuss this problem.'

(64) Namu mit-e anca-so yekiha-ca.  
    tree under-in sit-and talk-COM  
    'Let's sit down under the tree and talk.'

As with Type A conjunctions in English, in each case here the first VP indicates  
an action requisite for the one conveyed by the second; the beancurd was bought  
at the same store referred to by the NP in the first VP; we will discuss the  
problem with Jean whom we plan to meet for that purpose; we will sit down under  
the tree and talk there. It is further important to note that the so clause,  
because it is an explicitly subordinate clause, prohibits tense- or aspect-  
marking on the verb:

(65) *Kake-e ka-oss-so tupu-lul sa-oss-ta.

In any case, and again like English, extraction is possible only from the second  
-- i.e., primary -- conjunct:

(66) a. [kake-e ka-so sa-un] tupu  
    'the beancurd that (I) went to the store and bought'

b. *[ka-so tupu-lul sa-un] kake  
    (lit.) 'the store to which (I) went and bought beancurd'
(67) a. [Uli-ka Jean-ul manna-so uinonha-ul] munce
   'the problem which we will meet Jean and discuss'

   b. *? [Uli-ka manna-so i munce-lul uinonha-ul] salam
   (lit.) 'the person we will meet and discuss this problem'

3.3. The Type B scenario is expressed through the use of the connective to, generally regarded as a connective for concessive adverbial clauses (we will gloss it as CON):

(68) I sul-un yolo can masyo-to an chuiha-n-ta.
    this liquor-TOP many glasses drink-COM not get drunk-PRES-DEC
    'Speaking of this liquor, you can drink many glasses of it and still not get drunk.'

(69) Jean-ui nonmum-un amuli yolo-pon ilko-to ihae-ka
    GEN paper-TOP however many-times read-COM understanding-NOM
    an ka-n-ta.
    not go(?)-PRES-DEC
    'Speaking of Jean's paper, however many times you read it, it is still not understandable.'

(70) Andrea-nun nae-ka amuli thailo-to soyong-i op-ta.
    TOP I-NOM however exhort-COM use-NOM nonexistent-DEC
    'Speaking of Andrea, it is no use for me to talk to her (i.e., she will not correct her behavior).'

Again, no tense or aspect marking is allowed on the verb followed by to in this construction. It also shares an important feature with English Type B constructions: the meaning of the full construction is always generic at some level. For instance, although (70) can be used when Andrea will not listen to others about one specific issue, the statement still refers to her habitual behavior in that regard. In these examples, the topicalized NP is an argument of -- and hence has been extracted from -- the first (i.e., to-) clause, but not the second. This is particularly noteworthy, given that the to-clauses are syntactically subordinate. That is, not only does Korean have a mechanism for syntactically promoting a semantic secondary to main clause position, it also can syntactically demote a semantic primary to adverbial position.

To is also used, together with various other morphemes, for syntactically and semantically subordinate adverbial clauses with concessive interpretations:

(71) Suney-ka cip-ul sa-cu-oss-nun-te-to Andy-nun yoconhi
    NOM house-ACC buy-BEN-PAST-despite TOP still
    pulphyong-ul ha-n-ta.
    complaint-ACC do
    'Despite the fact that Suney bought him a house, Andy is still complaining.'
Unlike the generic to examples above, (71) does not allow extraction out of its subordinate clause:

    (lit.) 'Speaking of houses, although Suney bought him one, Andy is
    still complaining.'

The explanation, of course, lies in the semantics of these constructions. A sentence which involves a generic to construction (as in (68)-(70)) invokes the Type B scenario and is interpreted as a statement characterizing an element referred to in the to-clause. Importantly, the to-clause is semantically primary, and thus extraction from it is permitted. Constructions like (71) lack this quality: (71) cannot be interpreted to be about houses or Suney.

3.4. While there are several ways of forming sentences which express a cause-effect relationship in Korean, only one of these -- the simple coordinate structure, or ko-construction -- exactly conveys a Type C scenario. What distinguishes this from the logical conjunction discussed above is that the former does not allow marking of tense on the verb that ko is attached to:

(73) Hankukintul-i insam-ul mok-(*oss/*nun)-ko cangsuha-oss-ta
    Koreans-NOM ginseng-ACC eat-(PAST/PRES)-and live long-PRES-DEC
    'Koreans eat/ate ginseng and live/lived long.'

(74) Lauri-nun i chaek-ul ilk-0/-oss-ko cikop-ul kuha-oss-ta.
    TOP this book-ACC read-0/PAST-and job-ACC get-PAST-DEC
    'Lauri read this book and got a job (as a result).' /
    'Lauri read this book and she got a job.'

As can be seen, when tense is added to the ko-marked verbs, the ko-clause cannot be interpreted as being causally related to the following VP: in (74), for example, the version with the past tense morpheme oss indicates that Lauri did two unrelated things. Other connectives which express the Type C scenario include various ko-compounds such as koso, konun, kosenun, which can usually substitute for ko without affecting the acceptability or the meaning of the sentence significantly.

Now consider the following sentences, where material has been extracted from the ko-clause:

(75) [hankukintul-i mok-ko cangsuha-nun] yak
    Koreans-ACC eat-and live long-REL medicine
    'the medicine which Koreans eat and live long'

(76) [Lauri-ka ilk-ko cikop-ul kuha-n] chaek
    read-and job-ACC get-REL book
    'the book which Lauri read and got a job'
As expected, because the ko-clauses here are semantic primaries, extraction out
of them is quite acceptable.

There are, as we suggested, other morphemes which express a cause-effect
relationship between clauses, but which do not convey a Type C scenario. For
example, in the following sentence, it is taken that Philip's building a house
easily caused people to be surprised:

(77) Philip-un cip-ul suip-ke ci-o/oso salamtul-ul
     house-ACC easy-ADV build-and people-ACC
     nola-ke ha-oss-ta.
     surprise-CAUSE-PAST-DEC
     'Philip built a house easily and (it) surprised people.'

But in the interpretation of this sentence the first clause is not a primary:
it perhaps means something more like 'By building a house easily Philip surprised
people'. Thus, extraction from the secondary is not permitted:

(78) ??[Philip-i ci-o/oso salamtul-ul nola-ke ha-n] cip
     'the house which Philip built and surprised people'

3.5. The Korean constructions employed to convey the Type D scenario more or
less directly translate the English constructions in which the semantic secondary
is realized as an adverbial clause (see (42)-(43) above):

(79) Tom-un uisa-ui cisi-lul ttalu-a tu kaci yak-ul
     TOP doctor-GEN direction-ACC follow-ADV two kinds medicine-ACC
     pokyongha-ko iss-ta.
     take-PROG-INDIC
     'Tom, following the doctor's direction, is taking two kinds of
     medication.'

     TOP good-ADV elderly-PL-ACC take care-PROG-INDIC
     'Ann is being nice and taking care of the elderly.'

The adverbializing morpheme keto in (80) (which is possibly a compound of ke and
to) has the effect of indicating that the preceding adjective conveys an
appraisal by the speaker of the subject's behavior described in the VP that
follows. This, of course, is exactly what the first conjunct of a Type D
structure in English does. The extraction possibilities in these constructions
are as predicted by the CAC, as the following examples, to be compared with (79),
show:

(81) *[Tom-i ttalu-a tu kaci yak-lul pokyongha-ko iss-nun]
     uisa-ui cisi
     (Lit.) 'the doctor's direction which Tom, following, is taking two
     kinds of medication'
(82) [Tom-i uisa-ui cisi-lul ttalu-a pokyongha-ko iss-nun] yak 'the medication which Tom, following the doctor's direction, is taking'

As for (80), since there is only one clause involved, the question of whether extraction can be made from the secondary clause does not arise.

4. Conclusion

We have seen that English and Korean behave identically with respect to extraction from constructions conveying scenarios of Types A-D respectively, even though the two languages employ different syntactic devices to instantiate those scenarios. The natural conclusion is that the CAC should be extended to cover the Korean cases as well -- that is, that the CAC is, rather than a constraint on syntactic form, a requirement that filler-gap relationships at a level at which the primacy of clauses is determined be computable. Indeed, we have seen that in both Korean and English, surface syntactic form is not a limiting factor as regards extraction, and that in Korean extraction is even possible from syntactically subordinate clauses.

It is interesting, we think, to observe how syntactic and semantic phenomena interact in these cases. For example, we've noted that in English the promotion of a syntactic adverbial to main-clause status results in the content of that clause being asserted -- cf. (83) and (84):

(83) a. The temperature having dipped below zero that day, the team was not able to play their final game.
    b. Following the instructions of his doctor, he stopped watching G-rated movies.

(84) a. The temperature dipped below zero that day and the team was not able to play their final game.
    b. He followed the instructions of his doctor and stopped watching G-rated movies.

This is presumably possible because of the inferences that may be drawn about the relationship of conjoined clauses to one another. We've also noted that where the subjects of the secondary and primary clauses are coreferential, as in (83b), the promotion of the adverbial must be accompanied by VP conjunction; if the conjunction is sentential, then this is taken to signal that it is also coordinate. However, if the clauses contain noncoreferential subjects, as in (83a), then VP conjunction will, of course, not be possible and no particular significance will attach to the presence of those subjects in the resulting conjunction. The upshot of this is that (85a) is correctly predicted to be a good deal less strange than (85b), although the two sentences are syntactically almost identical:

(85) a. ?That was the game that the temperature dipped below zero that day and the team was not able to play.
    b. *That's the kind of movie that he followed the instructions of his doctor and he stopped watching.
References


Footnotes

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1. See also Gleitman (1965).

2. There may be an advantage to the position Lakoff takes and a disadvantage to regarding the meaning of and as being changeable from one construction to the next. That is to say, it may be more useful to consider how and, whose meaning
is given by standard logical truth tables, can be used in various situations. In the first place, concessive and probably doesn't mean exactly "nonetheless" or "and nonetheless," since nonetheless can be explicit: How much can you drink and nonetheless not .... In the second place, the fact that the second conjunct is contrary to normal expectation is perhaps less a fact about and and more a fact about the two conjuncts, since the conjunction obeys DeMorgan's Laws: you can drink $x$ amount and not end up with a hangover = it's not the case that if you drink $x$ amount you'll get a hangover.

3. Of course, if two propositions are causally related, this may be taken to constitute grounds for judging their conjunction to be "natural." For example, with respect to (9), if drinking a particular potion contributes to longevity, then drinking and living long form a natural, Type A scenario as well. That is, Type C scenarios may be a subset of Type A scenarios. We will return to this point below.

4. We also ignore all cases of lexical conjunction, which can never violate the CSC acceptably.

5. It is not accidental that, in (27), the syntactic object "beansprouts" is taken as the theme of the sentence, whereas it is the subjects of (28) and (29) that are so interpreted. The reason is that a Type B statement is always generic in one sense or another. Thus, given what we know about beansprouts and the fact that you may be interpreted generically, (27) is most naturally interpreted as a generic statement about beansprouts. (If you is interpreted as referring specifically to the hearer or is replaced with a proper name, the result is semantically odd.) On the other hand, when the subject of a Type B structure is interpreted non-generically, as in (28) and (29), it is always interpreted as the theme, although the statement as a whole retains the flavor of a generic because it refers to tendencies of the referent of its subject. (Note that if drink tea and stay in a cave are substituted for eat an entire cheesecake and sunbathe in (28) and (29) respectively, the sentences would leave us puzzled.)

6. There is, of course, a third reading, where there is no connection between the two events, i.e., where and is a logical connective and the conjunction is symmetric.

7. The CAC may be seen to have much in common with the following constraint proposed by Kuno (1976):

   (i) The Thematic Constraint on Relative Clauses: A relative clause must be a statement about its head noun.

According to Kuno, the ungrammaticality of complex noun phrases like (ii) is a consequence of this constraint, rather than of the CSC, because the putative source of the relative clause (iii) is not about the lute:
(ii) *The lute which Henry plays and sings madrigals is warped.
(iii) Henry plays the lute and sings madrigals.

Kuno explains the counterexamples to the CSC that Ross was concerned about similarly: (iv) is acceptable because (v) is about the whiskey:

(iv) Here's the whiskey which I went to the store and bought.
(v) I went to the store and bought some whiskey.

Within the domain of relative clauses consisting of conjoined structures, the CAC and the Thematic Constraint make the same predictions just on the assumption that only a relative clause containing an extraction site in a primary conjunct can be "about" its head noun. If this is the sense in which Kuno intended his constraint to be taken, then perhaps our proposal can be thought of as giving substance to, and making precise, that suggestion, and as having the added advantage of covering instances of wh-movement as well.

8. Where there is more than a single primary clause, the CSC will of course ensure across-the-board extraction from all the primaries. Thus, there can be multiple extractions, as Lakoff notes, generating curious sentences like the following:

(i) How many courses can you take for credit, still remain sane, and get all As in?
(ii) 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.

Presumably, the CAC could be augmented to cover this ground and thereby to permit the CSC to be dispensed with in its entirety. Because in section 3 we will be forced to take a different, and somewhat broader, view of the facts, we will not pursue this course here.

9. Note that the to-clauses in (68) and (69) lack subjects. This is because Korean, lacking such devices as the generic you or one available in English, usually leaves out the would-be pronouns altogether in similar circumstances, as can be seen in the following:

(i) Konkang-un susulo tolpo-ayaha-n-ta.
health-TOP for oneself take care-must-PRES-DEC
'One should take care of one's health for oneself.'

(ii) Kyothon kyo-chik-un cal cikh-oyaha-n-ta.
traffic rules-TOP well obey-must-PRES-DEC
'You should obey traffic rules well.'