A Principled Exception
to the Coordinate Structure Constraint

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1. Introduction to the problem.

The immediate subject of this paper is a set of sentence-types which form an exception to the Coordinate Structure Constraint of Ross (1967), which, under any known formulation, prohibits extraction from a single conjunct of a coordinate structure. The Coordinate Structure Constraint correctly predicts that 1b will be ill-formed, though 1a, closely related to 1b's source, is fine.

   1.   a. The Democrats will select Ferraro as their chairman and nominate a man for president.
         b.   *Who will the Democrats select as their chairman and nominate a man for president?

Our concern is with cases like those in 2, which seem parallel to forms as in 1, but where the content-question is quite acceptable.

   2.   a. We expect our graduate students to teach three courses and finish a dissertation on time.
         b. How many courses can we expect our graduate students to teach and (still) finish a dissertation on time?

That is the nature of the initial problem. It will not be difficult to isolate initially the nature of the exception. As we shall see in the next section, the exceptionality of this construction has something to do with the nature of the meaning of the conjunction used in cases like 2, or the relation between the two activities linked in the conjunction. Somehow or other, and stating the point in an overly crude fashion, to be sure, the exceptionality of the construction derives from the fact that the "and" involved here is an "and" that could be paraphrased as "and nonetheless".

2. The CSC, and the phenomenon in some more detail.

I will assume that the reader is familiar with the basic literature on the Coordinate Structure Constraint. This literature, starting with Ross (1967), includes the observation that there are two major sources of

counterexamples to the Constraint. The first is the case of across-the-board (ATB) extraction, where the extracted element has a source (or corresponds to a gap) in both conjuncts, as in 3a. The second source is when the first element is a quasi-auxiliary, as in 3b.

3. a. Who do Democrats love and Republicans hate?
    b. i. What did he go and do next?
       ii. What do you suppose he went to the store and bought?

My particular interest in this paper concerns extraction from coordinate VPs. In general, VP-coordination respects the Coordinate Structure Constraint just as other coordinates do; we cannot say "Who do Democrats love and hate Ronald Reagan?", of course. However, when the sense of the relation between the two conjuncts is rather special, then, as we have already seen, the Coordinate Structure Constraint can be violated.

What is this thing called the Coordinate Structure Constraint? We don't really know. A few formal, syntactic accounts of the Coordinate Structure Constraint have been offered in recent years, no doubt the best known being Gerald Gazdar's (1981) discussion in the context of Generalized Phrase Structure Grammar (GPSG), where the Constraint is seen as deriving from a more general property of syntactic parallelism; if conjuncts must all agree with respect to some set of syntactic features, and if the property of being "Slashed" -- having an extraction gap -- is such a property, then the Coordinate Structure Constraint has an immediate syntactic, and purely formal, explanation.

The phenomenon we are looking at casts some doubt on such an approach, at least if taken at face value. The Coordinate Structure Constraint fails here not because of some formal failing of English or the grammar, but, it seems, because of the meaning of the construction. Our first task, then, must be to investigate the semantic range of this construction, and see in what ways that guides and governs the syntax.

Bearing in mind the examples we have already looked at in 1 and 2, we might start by asking the question: what kind of relationship can hold between two coordinated VPs? -- not just in the cases we are concerned with especially in this paper, but more generally. Typically, three kinds of coordination have been noted in the literature, to my knowledge. The simplest is the one we may call "truth-conditional", one that has a

truth-condition as established by familiar truth-tables (see 4a). The second is the "temporal and", as in 4b; the third is the "causal and", as in 4c. The subject of our concern here, though, is a fourth use, the "despite" or "nonetheless" use, as in 4d.

4.   a. Our first contestant likes to play the piano and (to) learn exotic languages.
     b. Harry is the only one who can hear a song once and play it perfectly on the piano.
     c. The child heard the news and broke down in tears.
     d. Jones went over the rapids and lived to tell the tale of it.

There has been much discussion in the literature concerning the relationships among the first three (and, we may suppose, by implication all four) uses of "and". My goal is simply to illustrate that with the fourth, "despite" use of "and", extraction from the first conjunct is possible, as we see, from additional examples in 5.

5.   a. How many counterexamples can the Coordinate Structure Constraint sustain and still be considered empirically correct?
     b. If the CIA could give hidden money for arms aid to Nasser and get nothing in return, why couldn't such funds be used to subsidize a Syrian refinery and avoid the ponderous formal agreements that I doubted any Syrian government would be able to sign with the United States and survive? [from Ropes of Sand, America's Failure in the Middle East, by Wilbur Crane Eveland.]
     c. How many lakes can we destroy and not arouse public antipathy?
     d. Who is the most incompetent member the Commission can nominate and still preserve face in the international community?
     e. How much can you drink and not end up with a hangover the next morning?

There are a number of characteristics of this syntactic oddity that we should be aware of.

First, the extraction works best if it involves a scalar quantity. Thus, while 5e is perfectly normal, 6a is more than a bit odd; 5d is much better than 6b. For better or worse, judgments are, as they say, extremely subtle here; but the examples in 6c,d, make this writer and his informants quite uncomfortable, though 6e seems

fairly natural.

      6.   a.   What can you drink and not end up with a
hangover the next morning?
          b. Who can we nominate and still preserve face
in the international community?
          c.   Who can this country elect and still
survive?
          d. Which one can we take and not get caught?
          e.   What kind of music can you listen to and
still get your work done?

The reason for the preference for scalar quantities
seems quite straightforward: it enhances the contextual
understanding that the action of the second conjunct
takes place despite that of the first conjunct.

Second, the second conjunct must be a bare VP, not a
full infinitival VP, as we see in 7.

      7.   a. How many courses can we expect our students
to   teach   and
$\left\{ \begin{array}{l} \text{still} \\ \text{*to still} \\ \text{*still to} \end{array} \right\}$
write   a   decent
dissertation?

This is more generally a property of the "despite"
sense, it seems, rather than a limitation on the
extraction,   as 8 suggests; compare 8b, with the
"despite" sense, and the better 8c, without it.

      8. a. Do you expect to hold down three jobs and
$\left\{ \begin{array}{l} \text{still} \\ \text{*to} \\ \text{*to still} \\ \text{*still to} \end{array} \right\}$
lead a normal life?

      b.   The IMF wants to invoke austerity measures
in Chile and (*?tc ride out the waves (that may ensue).
      c.   The I$_1$IF wants to invoke austerity measures
in Chile and (t)) encourage private savings in the
developed countries.

This certainly seems like an odd fact. From a syntactic
point of view, the status of the infinitival to is
rather unclear; the best study of the matter, Pullum
1982, concludes that this to is a verb of defective
distribution (an analysis that was incorporated in the
better known Gazdar, Pullum, and Sag 1982). Pullum
doesn't quite put it this way, but his analysis in
effect says that to and do, in addition to differing by
only one phonological feature (voicing), differ only in
one small way -- do only appears in finite contexts, and

to only in non-finite contexts. Other than that, they share the property that they obligatorily take bare verbal complements (and hence not modals, which only have inflected forms). That is a very surprising analysis, but it does have an interesting ring of elegance to it.

If everything Pullum says about to is correct (a point I'm willing to go along with), it is still far from clear why the appearance of to should matter for the purposes of violating the Coordinate Structure Constraint. But the fact is that the presence, or lack of it, of the to has a fairly sharp semantic effect. Consider an example in (9). Putting it in terms of syntactic categories, if, as in 9b, we coordinate bare infinitives (and thus have only one occurrence of to), the complement represents a single mental representation (the single desire for two things), whereas if the coördination is done at the [-Finite] VP level, as in 9a, where two tos appear, we find that we are reporting two mental representations. Where this intuition comes from may be hard to state, but the judgment seems firm and generally consented to.

  9. a. Sullivan wants the government to declare martial law and to arrest labor activists.

     b. Sullivan wants the government to declare martial law and arrest labor activists.

Third, the VPs must describe activity-types, not specific actions that took place in a given place and time. Compare 10a and 10b; in the latter, the actions are tied down to a specific time and place, and the extraction is bad. The reason for this property seems to be that the odd counter-causal sense which is required (the sense that the second conjunct happens despite the first) is greatly enhanced in descriptions of generic activity types.

  10 a. How many courses can we expect our graduate students to teach and still finish their dissertations on time?

     b. *How many courses did Mrs. Sykes teach last year and still finish her dissertation on time?

To illustrate cases where a non-"despite" reading is involved, and where extraction is not permitted, consider the examples in 11, where the temporal (and perhaps some of the causal) sense is found in the conjunction.

11.   a.   *I   tried to learn Sanskrit and become   a
palm-reader; which language did you try to learn and
become a mystic?
        b.   *Which   bank did she urge Sam to   open   a
bank account at and pay his bills by check?

3. An attempt at orientation.

What kind of hypothesis might we be led to in the light
of the data considered thus far? The most insecure pure
syntactician might well decide that this data is only
grist for the anomalist's mill, he who always looks for
the   uncomfortable morsel of data that acts like sand in
cogs of the well-oiled machine -- the Charles Forts of
linguistics.   At   the other extreme (as I see it, at
least) we might find the linguist who would be ready to
conclude that this shows that the Coordinate Structure
Constraint "is semantic in nature", not syntactic.   That
doesn't seem quite right, either.   It serves no purpose
to   lose sight of the fact that the   construction   we're
looking at today is, indeed, somewhat marginal, and the
oddity of the syntax seems to derive from the oddity of
the   semantics.   The semantic relation between the   two
activities described by the coordinated VPs is quite the
opposite from   the   core relation   that   holds   between
coordinate VPs; rather than the two VPs having a
symmetrical relation, we find that the two activities in
effect are competing -- that is, the more we have of the
first activity, the less likely is the second activity
-- that's the meaning, or the semantic relation, of the
"despite" coordination.

Thus the Coordinate Structure Constraint, it appears, is
one that requires syntactic parallelism just in case the
semantics also presents its own semantic parallelism, at
least within reasonable limits.   When those reasonable
limits are transgressed, and syntactic coordination is
used   in a context when the semantics is highly
asymmetrical, then no Coordinate Structure effect is to
be found.

My suggestion is this: our curiosity piece is but one
example of   a larger class of phenomena which have
in common that they rest on the divergence between
syntactic and semantic representations not being too
great.   This class includes some of the phenomena that
generative syntacticians have looked at in recent years
under the rubric of "restructuring" -- in particular,
the possibility of pseudo-passives in languages like
English, where a complement NP may be passivized like a
direct object NP just in case the semantic relation of

the object to the verb mirrors that of a possible object-to-verb relation.

The Coordinate Structure Constraint is surely not just an arbitrary fact about syntax in search of a formalization and nothing more. It seems most likely that it is a symmetry condition on conjuncts that is induced as a reflection of the symmetric semantics that we normally and typically find when elements are conjoined.

As a syntactic restriction in English, the Coordinate Structure Constraint holds even when the relationship between the elements is the temporal or causal relationship that we looked at earlier. However, a relation of succession or cause-and-effect is a natural implicature when two actions are mentioned, one after the other; in fact, even if two events are described in two separate sentences, with a full stop between them, it is natural to infer sequentiality or even a causal relationship (as in 12), But the "despite" sense has no such natural basis; it is unnatural to infer a "despite" sense in the sequence in 13.

    12. The light turned green. The cars began to move.

    13. Elizabeth worked forty hours a week last year. She finished her dissertation.

We should say, then, that the range of semantic descriptions that "and" can represent has three cut-off points. First, there is the core meaning of "and", the one that we called the "truth-conditional" sense, the one that hard-nosed semanticists have insisted was the only real meaning of "and". Second, there is the natural range of extended senses, which includes primarily the causal and the sequential senses. Finally, there are the semantic outer reaches where "and" can still be used in English, but where semantic symmetry whose expectation is induced by the core sense is entirely missing. The semantics diverges dramatically from the syntax, the Coordinate Structure Constraint no longer holds, and in the following section we will see some reason to believe that the syntax restructures to follow the semantics.

4. On to stranger things.

In this final section, I would like to turn to a rather different construction that is no doubt related to the construction we have been looking at. In a paper presented at this conference eleven years ago, John

Lawler (1974) discussed a very disturbing construction in English in which a pleonastic negative is found, as in 14b.

    14.   a. I'm going to blow up this balloon.
            b. Not in here, you don't.

Lawler suggests that the initial not in these sentences is there because of a constraint that says, in essence, that an element in the scope of a negation in Logical Form must also be the scope of a negation in surface structure. (In certain respects, this 1974 paper has as much in common with current GB research as it does with classical generative semantics.)

Lawler's account doesn't help, though, when he comes face to face with examples like 15.

    15. a. Can linguists study negation?
         b. Not and stay sane (,they can't).

Lawler seems to suggest that the analysis is as in 16 -- in particular, that we have another case of coordinate bare VPs, and that the negation has only the first VP in its scope.

   16.
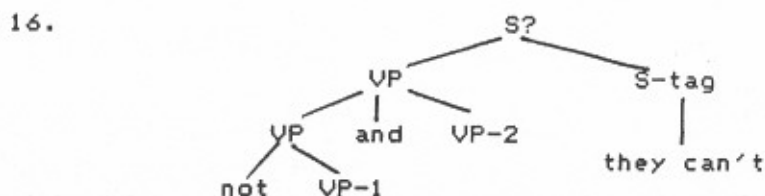
We may note that the pleonastic not cannot normally appear before a bare VP, though it can in front of an NP or PP (cf. 17); it certainly cannot appear in front of the second VP. Lawler also notes that the connection between the two VPs must be one of structurally or logically, but not personally, defined relationship; thus while 18 is possible, 19 is not.

    17. a. Can I borrow the car tonight?
         b. *Not borrow the car, you can't.
          (but cf. OK Not tonight, you can't.)
    18. a. Can I go outside without any clothes on?
         b. Not and stay healthy, you can't.

    19. a. Can I give you a hand?
         b. *Not and make everything worse, you can't.

In general, the relation between the two VPs is the same "despite" relationship that we have been looking at in this paper. That is, 15b or 16 is possible just in case we have the recoverable presupposition that if one studies negation, then one will go crazy -- that is, not stay sane. More generally, "not [ ] and VP", as in 16, is a possible sentence just in case VP-1-ing normally causes not-VP-2-ing, and this, of course, is just the "despite" sense of "and" that we have been looking at.

At this point, a rather different analysis of this data suggests itself, rather than 16, and this alternative is what I shall, tentatively, offer as the solution for the problem at hand. In general, one of these "stripped" nots, as in "not in my house!", takes the scope of the entire matrix sentence, with the overt material being merely the focus of the sentence. Thus 20 may be the correct structure, parallel to 21, as in 22.

20.

21.
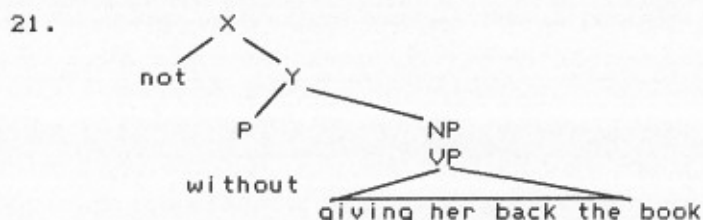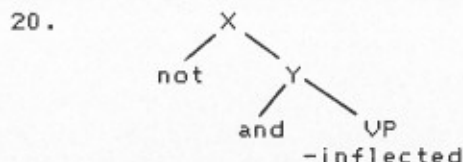
22. a. Can I get Mary to forgive me?
    b. Not without giving her back the book.

If this analogy is correct, it suggests that under certain conditions -- the semantic conditions we have discussed -- and can act as a syntactic subordinator, governing its bare complement VP. This in turn makes the syntactic structure no longer symmetrical, and suggests that the syntax may be modified to reflect the asymmetrical semantics, giving us a final structure as in 23 for our problem extractions [the internal structure of the matrix clause is simplified a bit in 23]. Once and is reanalyzed as a subordinator, both the extraction problems and Lawler's problems are

essentially solved.

23.

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                    S
          _____/ _____
        NP                    S
        |              _____/ _____
        |            NP        \       VP
     how many        |          S    / \
      courses        we        / \  VP    VP
                          can expect  \   / \
                                      NP    VP
                                      |    / \
                                    our   to   VP
                                   students teach [e]  \
                                                        XP
                                                       / \
                                                      X    VP
                                                      |   finish
                                                     and  their
                                                          theses
                                                            on
                                                           time
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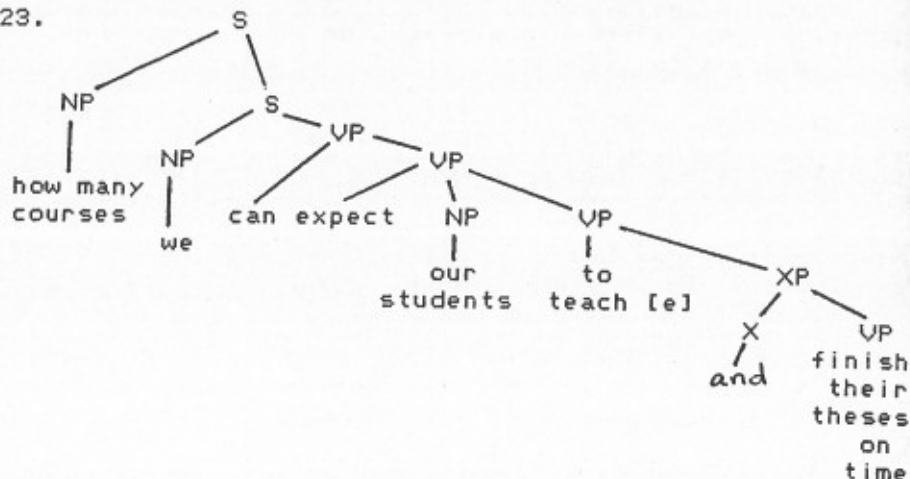
5. Conclusions

The proposal made here argues for a semantically-driven syntactic reanalysis. It probably does not matter just what kind of syntactic model is chosen to express it in. But it won't do to try to defuse the main point by interpreting the material discussed here as just a relexicalization of "and", or a mere historical fact. If semantics ever motivated such a reanalysis, then the facts that motivated the change then -- in that Golden Age -- were the same facts as we have today, and so (by some principle of uniformitarianism) the reanalysis is motivated synchronically today as well.

It is worth remembering that the syntactic facts that we have studied here could hardly have been the causes, and must rather have been the effects, of the change under scrutiny. Before such effects could be in fact observed if there ever were such a day, which is not obvious, and which can in principle never be determined) the reanalysis served no formal syntactic purpose whatsoever; and yet -- it occurred. It must have.

Footnotes

. I would like to thank Jim McCawley for directing my attention to Lawler (1974) at a crucial moment in the drafting of this paper. The reader is offered the author's apologies for not being able to pursue the very

interesting question regarding the possible boundary
between semantics, in some strict sense, and pragmatics,
with special regard to the effects involving the meaning
and uses of the conjunction and. The interested reader
will already have read the various references below,
especially Gazdar, Grice, Ruth Kempson, Schmerling, and
so on. I am grateful to Sue Schmerling for several
right on-target comments after the talk.

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