Paratactic and subordinative So*

JACOB HOEKSEMA AND DONNA JO NAPOLI

University of Groningen and Swarthmore College

The contrast between subordination and co-ordination, from both a syntactic viewpoint and a semantic viewpoint, is assumed by most formal theories of grammar today, so much so that generally only avowed a-formalists or anti-formalists seriously entertain the possibility that any other type of relationship may exist between clauses. Yet paratactic constructions persist in nagging us, undermining precisely that contrast, sometimes competing with co-ordination, sometimes with subordination, for the same semantic niche in language. In this article we focus on one such case in English, that of complex sentences containing the degree-adverbs *so* or *such* in which one clause serves to indicate an extent to which the predicate modified by *so*/*such* holds and the other clause expresses a result. As we argue below, there are two types of complex sentences with this general characterization, one of which is of the paratactic kind and is exemplified in (1):

(1) I fainted, the sun was so hot.

This sentence type consists of two linearly and hierarchically adjacent clauses, where the second contains *so*.[1] The comma after the first clauses in (1) is a writing convention and does not correspond to a pause. We will refer to the sentence-type exemplified in (1) as the Para(tactic)-So type. The other

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[1] For every example with *so*, analogous examples with *such* can be given. For example, beside (1) we might have:

(i) I fainted, the sun was such a scorcher.

We leave the filling in of *such* examples as an exercise for the reader.

sentence type (which we call Sub-So) is of the subordinating kind and is illustrated in (2).

(2) The sun was so hot I fainted.

This type has received far more attention in the literature and appears with greater frequency in both written and oral language. In a corpus of well over 5,000 occurrences of *so* (taken from many kinds of texts, including transcriptions of spoken English), we found 588 cases exemplifying the Sub-So construction, whereas the Para-So construction was represented by no more than a dozen or so cases (according to our most liberal counting).

We will show that (1) and (2) are not simple permutations of one another, but indeed exemplify two different structures. In section 2, we demonstrate that a fronting rule could not apply to (2) to yield (1). In section 3 we define our position that the sentence type in (1) is a single sentence grammatically, rather than two sentences which just happen to be written as a single sentence. In section 4 we point out several pecularities of the two constructions which our analysis accounts for. Section 5 contains residual issues. Finally, in section 6 we discuss the ramifications of our analysis for linguistic theory.

While we frame this study in GB, the choice of framework is largely arbitrary, given that our primary goal is to argue for distinct analyses for (1) and (2) and given that our result is to maintain the existence of paratactic constructions — constructions whose analysis challenges basic assumptions of all modern formal theories we are familiar with. For these reasons, the data alone merit our attention, regardless of the theoretical framework employed.

I. STRUCTURAL DIFFERENCES BETWEEN PARA-SO AND SUB-SO

There are several differences between sentences like (1) and sentences like (2), which all point in the following direction: sentences like (1) involve clause-embedding, whereas sentences like (2) involve clausal juxtaposition similar to, but not identical to, co-ordination. We offer four sets of data to this effect.

First, the second clause in (2) can be introduced by *that*, a common complementizer for embedded assertions, but one that does not introduce matrix clauses:

(3) The sun was so hot that I fainted.
(cf. We thought (that) she was nice. *That she's nice.)

(We assume that (2) and (3) are to be related in the same way other sentences

with and without the complementizer *that* are related.[2]) The same cannot be done with sentence (1); witness the ungrammaticality of the sentences in (4).

(4) *That I fainted, the sun was so hot.
*I fainted, that the sun was so hot.
*That I fainted that the sun was so hot.

Second, in the Sub-So construction, the first clause can undergo *so/such*-inversion, an instance of a type of inversion that typically occurs only in matrix clauses.[3] But the second clause cannot undergo inversion, which suggests it is subordinate.

(5) So hot was the sun that I fainted.
(cf. Down she fell.)

(6) *The sun was so hot (that) down she fell.
(cf. *I thought that down she fell. *Although down she fell, she got up again.)

Compare this to the readiness with which either clause may invert in the Para-So type, just as either clause may invert in co-ordinate structures.[4]

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[2] In languages which do not have a counterpart to English *that*-drop, such as Dutch, the differences between the paratactic and subordinating constructions are entirely obvious. In addition to the obligatory complementizer, the Dutch subordinating construction also has a special subordinate-clause word order (SOV rather than verb-second order). The following examples illustrate the two constructions for Dutch:

(i) Het regende zo hard dat ik helemaal nat werd.
    it   rained so hard that I completely wet became.

(ii) Ik werd helemaal nat, zo hard regende het.
    I became completely wet so hard rained it

[3] See Hooper & Thompson (1973) and Green (1976) for discussion. This sort of inversion may be motivated by discourse coherence relations, in which case it can, in fact, occur in embedded clauses (and see fn. 12 below for further remarks about factors relevant to the embedding of root phenomena). Our point immediately below in the text is that this inversion is not free in the second clause of our Sub-So construction, but, instead, can occur there only under the same sorts of conditions that allow inversion in other embedded clauses.

[4] In the Dutch Para-So construction, inversion appears to be obligatory, judging from the contrasts below:

(i) De hele wintervoorraad was op, zo veel hadden we gegeten.
    the entire winterstock   was gone so much had we eaten.
    Iedereen keek op, zo luid spraken we.
    everyonelooked up so loudly spoke we

(ii) *De hele wintervoorraad was op, we hadden zo veel gegeten.
    *Iedereen keek op, we spraken zo luid.

Examples like (ii) are possible only as loose combinations which lack the typical Para-So interpretation in which the first conjunct serves to indicate the extent to which the property holds that is denoted by the adjective combining with *so*. Similarly, English sentences like (iii) and (iv) are not Para-So cases but asyndetic conjunctions which happen to contain *so/such*.

(iii) Don't go away, I have so much to tell you.
(iv) Don't bother with him, he's such a jerk.

(7) Down she fell, the sun was so hot.
     She fell down, so hot was the sun.
(8) Down she fell, so hot was the sun.
     (cf. Out she went, and in he came.)[5]

Third, in the case of the Sub-So type, a quantifier or quantified NP in the first clause can bind a pronoun in the second clause, but not vice versa, as expected if the second clause is syntactically subordinated to the first.

(9) (a) Fred didn't need anyone$_i$, so badly that he would hire him$_i$, without an interview.
          (cf. Fred didn't tell anyone$_i$, that he would hire him$_i$, without an interview.)
     (b) Fred needed each applicant$_i$ so badly that he would hire him$_i$, without an interview.
          (cf. Fred told each applicant$_i$ that he would hire him$_i$, without an interview.)
(10) (a) *Fred doesn't need him$_i$, so badly that he would hire anyone$_i$, without an interview.
          (cf. *Fred didn't tell him$_i$, that he would hire anyone$_i$, without an interview.)
     (b) *Fred needed him$_i$, so badly that he hired each applicant$_i$, without an interview.
          (cf. *Fred told him$_i$, that he would hire each applicant$_i$, without an interview.)

This contrasts again with the Para-So sentence type, where binding is not permitted in either direction with a form of *any* (in the (a) examples) but binding is permitted from left to right but not vice versa with other QNPs (in the (b) examples), just as in co-ordinate structures:

(11) (a) *Fred didn't hire anyone$_i$, that day, he was so fed up with him$_i$.
          (cf. *I don't like anyone$_i$, and I certainly don't like him$_i$.)

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[5] To show that the Dutch inverted cases really correspond to the English Para-So construction, we also mention the impossibility of negating the clause containing *zo/zulk*:

(v)   Ik kan je wel opeten, zo leuk vind ik je.
      I can you eat-up so nice find you I
      'I could eat you up, I like you so much.'
(vi) *Ik kan je wel opeten, zo leuk vind ik je niet.
      I can you eat-up so nice find I you not

Compare this with the Sub-So case (accepted by our informants, although one of our anonymous referees reported finding it odd for other informants):

(vii) Zo leuk vind ik je niet, dat ik je wel kan opeten.
      so nice find I you not that I you can eat-up
      'I don't like you so much that I could eat you up.'

     (b) Fred hired each and every applicant$_i$ that day, he needed him$_i$ so badly.
          (cf. I like each and every applicant$_i$, and I certainly will hire him$_i$.)
(12) (a) NOT APPLICABLE (negation in the *so*-clause)
          (cf. *I don't like him$_i$, and I certainly don't like anyone$_i$.)
     (b) *Fred wouldn't hire him$_i$, that day, he was so fed up with each applicant$_i$.
          (cf. *Fred wouldn't hire him$_i$, that day and each applicant$_i$ went home mad.)

(The gap in example (12a) is due to the fact that a sentential negative cannot occur in the *so*-clause of the Para-So construction. This fact is accounted for in section 4 below.)

Fourth, the *so* clause can be negated in the Sub-So type, with the second clause falling within the scope of negation. Negative-polarity items, such as *ever*, occurring in the second clause, can be licensed by negation in the first clause if the *not* is interpreted as linked to the *so*. However, negative-polarity items occurring in the first clause cannot be licensed by negation in the second clause. This is not too surprising, given that negative-polarity items pattern in much the same way as bound anaphors. Again, this pattern is identical to that found with a matrix clause that contains a subordinate clause following the matrix verb.

(13) Fred is not so stupid he would ever betray his ignorance of elementary logic.
     (cf. I didn't think I would ever see him again.)
(14) *Fred is ever so stupid (that) he wouldn't betray his ignorance of elementary logic.
     (cf. I may ever have thought I wouldn't see him again.)

In the case of the Para-So construction type, negation of the *so*-clause is not possible (and, as we said above, we account for this fact in section 4). Still, we can point out that negation in either clause does not license polarity items in the other side, just as negation in either member of a co-ordinate structures does not license polarity items in the other one:

(15) NOT APPLICABLE (negation in the *so*-clause)
     (cf. *I would ever volunteer and I wouldn't go.)
(16) *Fred did not betray his ignorance he was ever so stupid.
     (cf. *I didn't volunteer and I would ever go.)

Accordingly, we accept the classical analysis of sentences with the Sub-So construction, in which the embedded clause is licensed[6] (we use the term here

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[6] This 'licensing', however, is not ordinary selection by means of lexical subcategorization, as Liberman (1974), for instance, has already pointed out, since the relation between *so/such* and the depend on multiple occurrences of *so/such* and since the relation between *so/such* and the

in a generic, non-technical sense) by the presence of the intensifier *so/such* of the matrix clause (Gueron & May 1984).[7] The embedded clause with this analysis would be in extraposed position at S-Structure. We will see (in our discussions of (23) and (39)–(43) below) how this analysis helps in accounting for further data on the construction.

The above data on the Para-So construction would be accounted for if neither clause in a sentence like (1) was subordinated to the other. The most ready analysis, of course, would be co-ordination lacking an overt co-ordinator (in contrast to sentences connected by *and, or or but*), and we have already seen multiple ways in which Para-So sentences are similar to co-ordinate sentences. However, there are several ways in which the Para-So construction differs from co-ordination.

First, the clauses in the Para-So construction must come in the fixed order of the *so*-clause second. True co-ordination, on the other hand is symmetric.[8]

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subordinate clause is a long-distance relation, which may transcend clause boundaries. The examples in (i) and (ii) illustrate these two points. In (i) each of the occurrences of *so/such* contributes to the extent of traffic that makes accidents unavoidable. In (ii), the relevant occurrence of *such* is embedded in a subordinate clause of which the clause *that she decided not to come to the party* is not a part (assuming it does not belong to what Sam told Betty).

(i) So many people drive so many cars with such speed, that accidents are unavoidable on the I-5.

(ii) Sam told Betty, that he had invited such a large number of people that she$_i$ decided not to come to the party.

[7] In our examples (9)–(16), the *so* phrase is VP internal. When the *so* phrase is in subject position, interesting facts pertaining to binding and negation arise. Consider first a contrast by Rouveret (1978) concerning binding:

(i) So many people followed her, that we had to accompany Ginger$_i$ to the station.

(ii) *She$_i$ was followed by so many people, that we had to accompany Ginger$_i$ to the station.

Rouveret accounts for this puzzle by postulating different attachment sites for the *that*-clause (where he, also, adopts the classical analysis in which the *that*-clause has been extraposed). In (i) the *that*-clause is adjoined to S, whereas in (ii) it is adjoined to VP. The binding possibilities can then be explained in terms of c-command (*She* c-commands *Ginger* in (ii), in violation of Condition C of Binding theory, but *her* does not c-command *Ginger* in (i)). Because of these confounding effects, our argument based on binding used only examples in which the *so*-phrase was VP internal.

Similar effects are found with respect to the scope of negation. In (iii) we have a preposed *so*-phrase:

(iii) *So many people weren't stupid that they would ever hire an imbecile like me.

(iv) *So often did he not show up that I would ever wait for him.

In neither of these instances is the *not* interpreted as linked to the preceding *so*-phrase. That is, *not* has narrow scope whereas *so* has wide scope in (iii) and (iv). For these reasons we built our argument in the text regarding negative scope around examples like (13), in which the *not* in the matrix clause clearly has scope over the *so*-phrase in the same clause.

[8] Schmerling (1975) gives differences between so-called asymmetric co-ordination, as in:

(i) Lizzie Borden took an axe and gave her mother forty whacks.

Second, the Para-So construction always involves precisely two juxtaposed matrix clauses. Co-ordination, instead, is generally iterative with the exceptions of *but*-sentences (**Mary left but John didn't but Mary may have*) and certain other types such as those involving *either-or* and *neither-nor* (**Either John leaves or I leave or Sue leaves*).

Third, the Para-So construction does not demand the same sort of parallelism of the two juxtaposed clauses that co-ordination demands of the conjuncts (see Napoli & Nespor 1986: 633–669, among others, where the complexity of the relevant notion of *parallelism* is explored). This fact is responsible for the gap we noted above with regard to the sentences in (7): no co-ordination examples are given. The co-ordination examples corresponding to the sentences in (7) would be:

(17) Out she went, and he came in.
     She went out, and in he came.

Neither sentence of (17) is stylistically lovely, although with a shrug, upward turned palms and the right intonation, both can be perfectly acceptable. Yet both sentences in (7) are fine with no need for directions on how to say them. Thus the Para-So sentences do not observe the same parallelism constraint that co-ordinate sentences do.

Fourth, while *wh*-movement of only one member of a co-ordinate structure is blocked, across-the-board movement (or extraction) is allowed:

(18) *What did John buy and Mary bought a motorcycle?
     *What did John buy a car and Mary bought?

(19) What did John buy and Mary borrow?

But all extraction, even across-the-board movement, is blocked in the Para-So construction (and see section 4 for more examples):

(20) *Who did you marry, you loved so much?

We offer a functional account of the failure of sentences like (20) in section 4. Suffice it to say, whatever the correct account is, extraction distinguishes between co-ordinate structures and the Para-So construction.

Fifth, as pointed out to us by an anonymous referee, when full clausal

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and true co-ordination, differences which show that 'asymmetric co-ordination' is co-ordination in name only. Sag et al. (1985), among many others, treat asymmetric co-ordination as subordination. Haiman (1985) points out ways in which asymmetric co-ordinative conditions, as in (ii), differ from true co-ordination:

(ii) Do that again and I'll scream.

In addition to such works on English, we find Thompson & Longacre (1985), who argue for a range of languages that apparent asymmetric co-ordination is really subordination involving adverbials.

conjuncts have co-referential subjects, an alternative construction with VP conjuncts is possible:

(21) John laughed and he left the room.
     John laughed and left the room.

But when the two clauses of the Para-So construction have co-referential subjects, no analogous alternative construction is possible:

(22) John fell asleep at his desk, he was so tired.
     *John fell asleep at his desk, was so tired.

Finally, most speakers cannot freely embed the Para-So construction, but all speakers can freely embed true co-ordinate structures. (We return to this fact at the end of section 3 and again in section 4. See also footnotes 11 and 12.)

For these reasons, we take the perhaps theoretically regrettable, but certainly motivated, position that the Para-So construction involves simple juxtaposition of the two clauses, where the *so* of the second clause allows cohesion of interpretation (explored in section 3).

Before we pursue the advantages of these analyses, let us turn to two issues that potentially threaten our analysis of the Para-So construction.

2. NO RULE CAN OPERATE ON (2) TO PRODUCE (1)

Given the previous section, it is clear that (1) and (2) are not to be identified as derivationally related. Yet the question arises as to why the second clause of 2 (a Sub-So sentence) cannot be fronted to yield (1) (a Para-So sentence), as in (23):

(23) ⎯⎯ the sun was so hot [I fainted]

The answer is immediate. Fronting of this sort is a movement from argument positions (A-positions) only.[9]

(24) (a) [Beans] I like.
     (b) [That he's left] she already knows.

[9] Fronted VP adverbials, as in (i) below, might arise as a result of optional subcategorization (which turns them into arguments rather than modifiers) as Chomsky (1965) did for manner adverbs and McConnell-Ginet (1982) justified on semantic grounds.

(i) Quickly he ran home.

In this bed it is said that Washington slept most often. Initial sentential adverbials, as in (ii), on the other hand, need not have been moved at all (Pollock, 1989, and Belletti, 1990).

(ii) Unfortunately, there's no beer left.
     Suddenly, she's gone.
     Perhaps this is true.

(c) [John] I'll talk to.
(d) [Him] I can live without.

It cannot occur with elements that are not arguments, such as comparative clauses or relative clauses:

(25) *[Than Bill is] Mary's taller.
     *[That I wrote] Mary came in with the book.

Nor can it apply to extraposed clauses (which are in non-A-positions – witness the dummy *it* filling the vacated A-position):

(26) *[That John is taller] it is curious.
     *[That Mary left] I find it odd.

Given our analysis (following Gueron & May, 1984) in which the embedded clause in the Sub-So construction is an extraposed clause, the movement in (23) is blocked just as the movement in (26) is blocked.

In addition, it should be noted that fronted *that*-clauses never drop the complementizer; compare (27) with (24b) above:

(27) *He's left, she already knows.

This confirms that (1) (which has no *that*) cannot be derived directly from (2) by fronting the subordinate clause.

In sum, there is no movement rule that could derive a Para-So structure from a Sub-So structure, thus the derivation in (21) is impossible.

3. (1) IS A SINGLE SENTENCE

Another question that arises right off is whether or not (1) is a single sentence. That is, despite the fact that it is written as a single sentence, it might well be a series of two separate sentences. In that case, the data in (9)–(16) would follow and we would not need to admit into our sentence grammar juxtaposed clauses that involve neither subordination nor co-ordination. With this analysis, (1) would be equivalent to:

(28) I fainted. The sun was so hot.

There are differences between (1) and (28), however. First, the intonation patterns differ. We asked a dozen native speakers of American English to read these examples to themselves and then read them a second time into a microphone that fed the MacSpeechLab II program. While some of our speakers produced a slow and unduly emphatic reading of each example, the results clearly indicate grammatical differences between the two. Figure 1
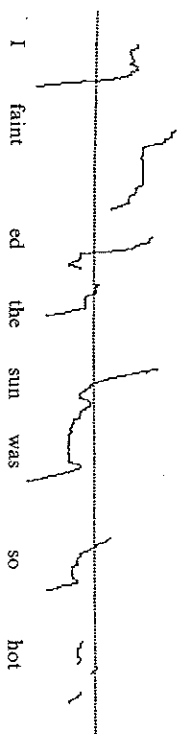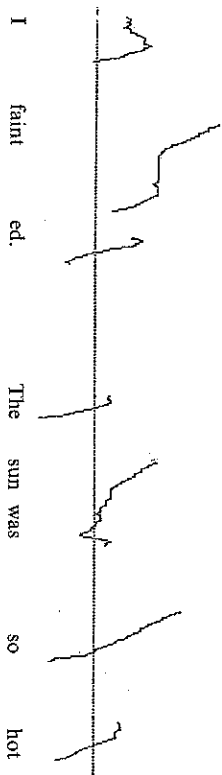
gives a typical pitch-tracking graph for sentence (1); figure 2, for sentence (28).

While much recent work on the intonation-syntax connection has shown that the correlation between intonation pattern and syntactic structure is neither direct nor unmediated, there seems to be a strong correlation between a fall in pitch with a following pause and the end of a syntactic structure (Pierrehumbert & Hirschberg, 1991). On the other hand, a falling contour with a final rise might signal a continuation of an utterance or might coincide with the end of a sentence. In figure 1 we see a fall with a slight rise on the second syllable of the word *fainted*. However, in figure 2 the slight rise is missing on this word, indicating a clear sentence boundary here. Other speakers we recorded showed this particular difference in the intonation contours of (1) and (28), although two speakers exhibited no final rise on the second syllable of *fainted* under any reading. We conclude that the rise on the final syllable of *fainted* in (1) (seen in figure 1) for those speakers who exhibited it is evidence of continuation of the syntactic unit.

We also noted a consistent difference between pitch-tracking graphs of (1) and (28) with all speakers regarding the intonation peaks: in the single-sentence interpretation in figure 1, pitch accents in the second clause are suppressed, leaving one intonational focus in the first clause, whereas in the two-sentence interpretation in figure 2, a second intonational focus occurs (invariably on *so*), which is at least as prominent as the first. Regardless of the cause of this difference, it can be used as an indication of non-identity of (1) and (28).

I faint ed the sun was so hot

Figure 1
Pitch-tracking for sentence (1).

I faint ed. The sun was so hot

Figure 2
Pitch-tracking for sentence (28).

Second, (1) and (28) have distinct meanings: from (1) we understand that the heat was the cause of fainting; from (28) we understand only that the sun was extremely hot. Thus (29) is a contradiction (which we have indicated with the symbol #), but (30) (read with a high intonation peak on *so*) is not:

(29) #I fainted, the sun was so hot, but that's not the reason I fainted.
(30) I fainted. The sun was so hot. But that's not the reason I fainted.

The *so* in (29) (and in (1)), then, can be called anaphoric, in that it relates the degree of heat to the event of the linearly preceding predicate of the matrix clause. (We will return to this point directly below.) But the *so* of (30) (and of (28)) is not anaphoric. If instead of *so*, we were to use anaphoric *that* in both (29) and (30), we find the result is a contradiction in both cases, as expected:

(31) #I fainted, the sun was that hot, but that's not the reason I fainted.
(32) #I fainted. The sun was that hot. But that's not the reason I fainted.

Third, while the speakers we have asked cannot freely embed the Para-So construction (a fact we discuss in section 4), there do exist speakers who can. One of our anonymous referees offered this example:

(33) Although I was almost fainting, the sun was so hot, I carried on.

Furthermore, all speakers can embed the Para-So construction under certain conditions (outlined in footnote 12), an example being:

(34) I'm afraid I won't last much longer I'm so tired.

This kind of embedding demands a single sentence analysis for the Para-So construction.

In sum, the juxtaposed clauses of the Para-So construction form a single sentence phonologically, semantically and syntactically.

4. ADVANTAGES OF OUR ANALYSIS IN ACCOUNTING FOR PECULARITIES OF PARA-SO SENTENCES

We have argued that (1) consists of two juxtaposed matrix clauses while (2) consists of a matrix clause with an embedded clause that has been extraposed. Both involve a *so/such* which tells us that the degree of some phrase was extreme to the point that an event was caused. In (1) this *so/such* occurs in the second clause and is anaphoric, pointing to the event of the first clause (which is the result clause). In (2) this *so/such* is not anaphoric, instead achieving full interpretation through the fact that the following clause (the result clause) falls within its scope domain. With these analyses, several pecularities of the two constructions now follow.

First, an anaphoric, degree *that* can replace *so* in Para-So sentences, but it cannot in a Sub-So sentence, where *so* is not anaphoric:[10]

(35) I fainted, the sun was that hot.
(36) *The sun was that hot I fainted.

On the other hand, a non-anaphoric, degree *too* cannot occur in Para-So sentences, but it can occur in sentences parallel to the Sub-So sentence in (2) (with appropriate and, here, irrelevant, concomitant syntactic changes):

(37) *We couldn't go out, the sun was too hot.
(38) The sun was too hot for us to go out.

Of course, as expected, the alternative to (37) in which we have two distinct sentences is grammatical (and we remind the reader that the intonation patterns of (37) and (39) contrast in the same way the intonation patterns contrast in figures 1 and 2 above, where *too* in (37) cannot receive a very high intonation peak, but *too* in (39) does):

(39) We couldn't go out. The sun was too hot.

Second, the Para-So construction cannot be used as an order:

(40) *Don't move him, he's so sick.
 (cf. Don't move him! He's so sick.)
 *Let's not talk to him, he's so stupid.
 (cf. Let's not talk to him. He's so stupid.)

Figure 3 and 4 give representative pitch-tracking graphs for the sentences in (40) on their acceptable readings (that is, on the readings given in parentheses after each ungrammatical example). The reading shown in figure 3 has a
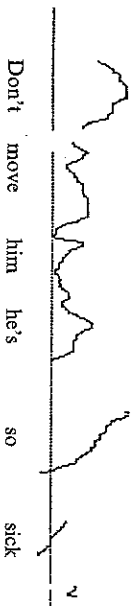

Figure 3
Pitch-tracking for the first sentence of (40) on its grammatical reading.

relatively low pitch on the word *him* with a clear fall; the reading shown in figure 4 has a relatively high pitch on the word *him*, again with a clear fall.

[10] Quirk *et al.* (1985: 1143, example (5b)) lists as grammatical:

 (i) I wasn't that tired I couldn't keep my eyes open.

None of the native speakers of English we have asked, British as well as American, accept this sentence even marginally. Should it be grammatical in some varieties of English, we have no account for it.
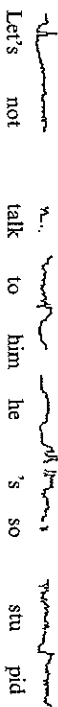
Figure 4
Pitch-tracking for the second sentence of (40) on its grammatical reading.

Neither example displays the kind of slight rise we saw in figure 1 on the final syllable of the first clause. Both figures 3 and 4 show an intonation peak (with a fall) on *so*. These facts are similar to the facts we saw above in figure 2, and support our contention that the only grammatical reading for examples like those in (40) corresponds to two separate sentences, not to the Para-So construction. On the other hand, we can easily order the first clause of a Sub-So sentence:

(41) Be so charming he can't resist you!
 Give such a fine performance they have to give you the part!

We offer a functional account of this difference. In the Para-So sentence, the second clause tells what caused the event of the first clause. It makes no sense to order the result of a clause that is simultaneously asserted as the cause of that result. So it makes no sense to order the first clause of a Para-So sentence. On the other hand, it makes perfect sense to order the cause which can lead to some result. Thus we can order the first clause in a Sub-So sentence.

Third, Sub-So sentences can undergo *wh*-movement out of the matrix clause only, whereas Para-So sentences cannot undergo *wh*-movement out of either clause, not even when the movement is across-the-board (as we noted above with (20), repeated here as (45)). Thus (42) is good in contrast to (43), but (44) is bad on either reading (whether the trace is supposed to occur in the first clause or the second one), as is (45):

(42) Which problem was so bad you had to quit your job?
(43) *What was it so hot you bought?
(44) *When did you buy a fan, it was so hot?
(45) *Who did you marry, you loved so much?

The data on the Sub-So structure are easily accounted for: *wh*-movement out of extraposed clauses is always blocked:

(46) *Who did you find it odd that John likes?
 *Who does it upset you that John likes?

The data on the Para-So structure, however, do not lend themselves to a syntactic account. Instead, in accounting for the ungrammaticality of (44) and (45), we first note that the Para-So construction is simply not able to be questioned, whether *wh*-movement is involved or not:

(47) *Did you faint, it was so hot?

In this way it again contrasts with the Sub-So construction:

(48) Was it so hot you fainted?

Let us add one more fact to be related to those on questioning above: Para-So sentences cannot be embedded, whereas Sub-So sentences can:[11]

(49) If it was so hot you couldn't breathe, then why didn't you quit exercising?

(50) *If you couldn't breathe, it was so hot, then why didn't you quit exercising?

These differences between the two constructions (regarding questioning and embedding) are best understood by considering the effect of each kind of construction in a discourse. The Sub-So sentence tells us that something happened to a great degree and a result followed. The Para-So sentence tells us that something happened, then it tells us the cause of that first event. This ordering of the cause after its result tends to dramatize the result. Typical situations in which we would choose the Para-So structure over the Sub-So structure might include ones in which the result is surprising or alarming:

(51) My spit cracked in the air, it was so cold.

The focus is on the result – and the placement of the result in initial position reflects this fact.

In the absence of a theory of exclamatives, we hesitate to classify Para-So sentences as true exclamatives. Nevertheless, like exclamations, their effect is to exclaim or emphasize – regardless of the fact that they need not be loud. And this common feature may well be responsible for the failure of questioning and embedding of Para-So sentences. In support, we note that at least the sentence type in (52), which is undoubtedly exclamatory, shares these properties: it cannot be questioned:

(52) *When did he leave town, damn it!
*Did he leave town, damn it!

[11] Sentences like:

(i) I knew she'd faint, it was so hot.

are not counterexamples. Here the result of the extreme heat is not that she would faint but that I knew she would faint. Thus the clause *it was so hot* is juxtaposed to the clause *I knew she'd faint*, not to the clause *she'd faint*. However, true embeddings of Para-So sentences do exist (see fn. 12 below for discussion).

And it cannot be embedded:

(53) *Because he left town, damn it!, I ate alone.

In fact, it is well known that exclamatory sentences in general resist being embedded.

This effect is so strong for our informants that they cannot embed Para-So sentences even under predicates like *be amazed* that can embed certain other exclamations (see Grimshaw, 1979):

(54)*I was amazed that you couldn't breathe, it was so hot.
*I was amazed at your not being able to breathe, it was so hot.
(cf. I'm amazed at how awful the whole thing was.)

A *prima facie* counterexample to this claim is (55), an attested example from our corpus:

(55) Shog, who would sweat in an igloo, he's so swarthy, is streaming.

Here the Para-So construction is contained in an appositive relative clause. However, there is good evidence that appositive relatives are not embedded clauses (see Emonds, 1979; Napoli, 1989), but form an independent utterance inserted into the main utterance. In particular, a point which Emonds attributes to Milner (1973) and Ogle (1974) is relevant here: certain sentential adverbs which reflect the point of view of the speaker are allowed only in main clauses and in appositive relatives. The following examples (from Emonds, 1979: 239) illustrate this for the adverb *frankly*, which is grammatical in the main clause (56a), the appositive relative clause (56b), but not in the (subordinate) restrictive relative clause (56c):

(56) (a) The boys who have lost their case, frankly, should give up.
(b) The boys, who have frankly lost their case, should give up.
(c) *The boys who have frankly lost their case should give up.

The Para-So construction is semantically similar to point-of-view adverbs in that it reflects the attitude of the speaker (due to its emphatic character) and so we assume that the same factor which bars such adverbs from subordinate clauses also bars the Para-So construction with its emphatic use of the adverb *so*.[12]

[12] A complication which we only briefly mention here concerns the existence of root-clause effects in some embedded environments (as noted in fn. 3; see Hooper & Thompson, 1973, and Green, 1976). Thus we find the following example (which appeared in the earlier text as (34)) to be better than expected, given the constraint against embedding of the Para-So construction:

(i) I'm afraid I won't last much longer, I'm so tired.

For such examples, it is important that the matrix subject be first person and the matrix verb one that reports inner thoughts. It is precisely in such contexts that other point-of-view constructions such as tag-questions and the evaluative adverb *frankly* become more acceptable:

Fourth, Co-So sentences resist negation in the *so*-clause, whereas Sub-So sentences allow negation in either clause:

(57) (a) He couldn't breathe, it was so hot.
     (b) *He had to drop everything else, it was so hot.
(58) (a) It was so hot he couldn't breathe.
     (b) It wasn't so important he had to drop everything else.

We contend that negation blocks the emphatic/exclamatory reading of a *so*-phrase, just as it blocks such a reading in other constructions. Compare:[13]

(59) *Exclamation:*
He's such a jerk!
How stupid it all seems!
Boy, I'm dumb!

(ii) I'm afraid he's not coming, is he?
(iii) *She's afraid he's not coming, is he?
(iv) I'm afraid that, frankly, he hasn't a chance. (= Green, 1976: ex. (28))

and compare (i) with:

(v) *I convinced Bill I wouldn't last much longer, I was so tired.

Also relatively acceptable is the Para-So construction in complements to verbs of saying (this time regardless of the person of the subject):

(vi) Fiona says she almost suffocated, the air was so foul.

Complements to verbs of saying often show root clause behaviour (see, for example, Green, 1976, and Weerman, 1989). We find that these examples are best without the complementizer *that*, perhaps because of stylistic reasons (the Para-So construction being somewhat colloquial), perhaps because of grammatical reasons (the Para-So construction being more like the main clauses of direct speech), or both.

[13] Some factors complicate the discussion of the *boy*-construction. A negative in the *boy*-construction is much better in some sentences than in others. Thus in contrast to the ungrammatical:

(i) *Boy, I'm not dumb!

we find the only slightly odd:

(ii) ?Boy, I'm not getting this! Will you explain it again?

The matter cannot totally be one of a contrast between the pejorative *dumb* and the positive *getting this*, since our informants rate as marginal:

(iii) ???Boy, I'm not smart!

Furthermore, when subject-auxiliary inversion occurs, a negative can appear with an exclamatory reading in some sentences that disallow a negative in the absence of inversion. So, in contrast to (i) and (iv):

(iv) *Boy, I'm not feeling food!

we find:

(v) Boy, am I not dumb! In fact, I'm smart.
(vi) Boy, am I not feeling good!

These same factors, however, do not affect either the *how*-construction or exclamations with *so/such*.

Non-exclamation:
He's not such a jerk.
*How stupid it all doesn't seem.
*Boy, I'm not dumb.

For this reason, negation is inappropriate in the *so*-clause of the Para-So construction, which is exclamatory by nature. This is true regardless of whether the negated clause expresses some low degree (as in (60) without a stress peak on *so*) or states that some extreme degree does not hold (as in (60) with a stress peak on *so*):

(60) It wasn't so important.

5. A RESIDUAL ISSUE

There are several uses of *so* in English today. We have argued above that the degree *so* can occur in the Para-So and Sub-So structures, in both of which a result clause appears. There is another use of *so* that introduces a subordinate clause telling us the reason for the event of the matrix clause:

(61) He left so (that) she could get ready.

Clearly, expressing cause and expressing reason or motivation are similar functions. However, we see no advantages in relating *so* sentences like that in (61) to Sub-So or Para-So structures, synchronically and many disadvantages (from the point of view of theoretical validity).[14] The question of how they are to be diachronically related is beyond the scope of our article.[15]

6. IMPORT FOR THEORY

We must admit into our grammar a type of syntactic relationship that is distinct from both subordination and co-ordination: parataxis. The particular instance of parataxis studied here involves not just juxtaposition of two matrix clauses, but also the presence of an internal marker (*so*), which is anaphoric, and so acts as a kind of glue for the two clauses. Our construction, then, differs from asyndetic constructions, in which no connector of any type is present.

That juxtaposition of clauses without overt connectors at the junction can result in a single sentence has been shown by many. Longacre (1985), for

[14] We know of no attempts in the literature to relate these *so* constructions synchronically. Culicover (1980) relates several uses of *so* to one another, but his discussion does not extend to these. Hankamer & Sag (1976) point out several uses of *so*, concluding (like us) that there is no motivation for relating them syntactically, although, once again, they do not discuss the uses of *so* examined here in the text.

[15] The *OED* traces the Sub-So use back to 1412, but makes no mention of the Para-So use. It traces the use of *so* in the *so that* construction in (61) back to 1489.

example, argues in detail for juxtaposition as a method of clause cohesion in Chicahuaxtla Trique (of Mexico). In fact, one of the uses of such juxtaposition is emphasis (p. 263) – just as with our Para-So construction. Longacre also suggests in passing various examples of possible parataxis in English (p. 240).

Furthermore, juxtaposition of clauses into constructions that have been labelled 'co-ordination' is common to a wide range of languages. Haiman (1985) claims that when a language makes use of so-called co-ordination with and and without the equivalent of and, co-ordination with and correlates with a greater conceptual distance between the conjuncts (p. 111). When the so-called conjuncts are clauses, the conceptual distance between them is greater if they differ by topic or subject or event or time-frame, etc., or when they are semantically dissociated because they are not logically connected, and so forth. His contention is supported by evidence from many languages, including Turkish, Feʔeʔ Bamileke and several Papuan languages. He argues that co-ordination without and is not really co-ordination at all, but an asyndetic construction.

Certainly, our Para-So construction involves a strong conceptual link between the two clauses (one of result and cause, in that order), a link that cannot be denied without contradiction (as we saw in (29) above, repeated here as (62)), in contrast to co-ordination structures that may invite a link because of societal or other discourse factors, but in which the link can be denied:

(63) #I fainted, the sun was so hot, but that's not the reason I fainted.
(63) Mary got pregnant and married John, but that's not the reason she married him.

Our Para-So construction, then, forms one more example of a structure that might at first be taken to be co-ordination without an overt co-ordinator, but that, in fact, is simple parataxis. It makes sense that a paratactic construction would insist on close conceptual links between the juxtaposed clauses, since without such links, how is the speaker to be able to construct an integrity of sense that allows the two clauses to be treated as a single sentence?

It is interesting to pursue the question of whether the existence of a Para-So construction in a particular language is predictable from other properties of the grammar of that language. For instance, it is conceivable that the very fact that the standard complementizer for direct-object clauses, that, is optional in most instances (as in (64)) is related to the ability of English to have the Para-So construction.

(64) I know she's here.

That is, the fact that English allows subordination to occur without an overt marker of subordination (here, an initial subordinating complementizer) may predispose it towards allowing other constructions in which overt clause connectors are either absent or somehow obscured.

If that were so, we would predict that languages which obligatorily and clearly mark their subordinate clauses (with a complementizer and/or with a special word order and/or with a special mood, etc.) would not exhibit the Para-So construction. While we have not examined many languages in this regard, we have examined some Germanic languages and some Romance languages.

The obligatoriness of *dat* 'that' in Dutch, which apparently does not rule out the existence of a Para-So construction (see fn. 2 above), might seem to militate against this speculation. However, one might note here that *dat*-less clauses (with a verb-second (V2) word order – that is, main clause word order) are at least possible as complements to verbs of saying (verba dicendi):

(3) Menzegt, het regent hier te veel.
    they say it rains here too much

In Frisian, as well as in the closely related Groningen dialect of Dutch, there is also a mixed construction, with a complementizer and V2 word order. This can be found in sentential objects of verbs of saying (see e.g. Weerman, 1989, for discussion), but also in the Sub-So construction: see, for example, the following examples from Gronings (taken from ter Laan, 1930: 145) and Frisian (taken from de Haan & Weerman, 1986: 84), respectively:

(66) Mor't was zoo'n aarm jonk wicht, dat ze kreeg genoade.
     but it was such a poor young girl that she got mercy

(67) Hy is sa meager dat hy kin effer in reid skúje.
     he is so thin that he can behind a reed hide

This then looks like an intermediate between pure subordination (with complementizer and SOV order) and co-ordination (without complementizer and with V2 order). De Haan & Weerman note that precisely in such cases the complementizer may be dropped and that the addition of negation or a modal verb in the *so*-clause will render this construction ungrammatical. Of course, both of these features suggest that we are again dealing with parataxis, since our Para-So construction involves no complementizer and does not allow negation in the *so*-clause (see (57b) above).

They also point out the existence in Frisian of a special type of *dat*-clause where V2 order is obligatory:

(68) ik ha him yn lang net sjoen, dat hi sil wol siik weze.
     I have him in long not seen that he surely will sick be
     'I have not seen him in a long time, so he must be sick.'

The obligatoriness of V2 suggests that both clauses are matrix clauses – as in parataxis or co-ordination – rather than one being subordinate to the other, in spite of the presence of the subordinating complementizer *dat*. Additional evidence for this comes from the possibility of Gapping (a phenomenon typical of co-ordination), as was pointed out by Jarich Hoekstra in personal

communication (in the following example, the material between ⟨ ⟩ is deleted in the gapped version of the sentence):

(69). ik ha him yn lang net sjoen dat hy ⟨hat⟩ my ⟨yn lang⟩ net ⟨sjoen⟩

The other types of *dat*-clauses reviewed above do not permit Gapping here. Thus this type of sentence might well be co-ordination rather than parataxis. Counterparts to (68) can also be found in the Groningen dialect (see ter Laan, 1953: 165):

(70) Heur voader is der   n neef   tou, dat ze   bin nog n
      her father is there a cousin of   so   they are still a
      beetje femilie.
      bit family

Thus the Dutch and Frisian data tend to support our speculation, after all. That is, *dat*-less clauses do occur in these languages (under complicated conditions) and both languages allow the Para-So construction.

Considering the Romance languages, we present a brief discussion of Italian. However, everything we say here stands as well for French, Spanish and Romanian, so far as we have been able to determine. In Italian, in contrast to English, Dutch and Frisian, *che* 'that' must appear if a direct-object clause is in the indicative mood (regardless of the choice of main clause verb):

(71) Ha detto che la casa non è occupata.
      *Ha detto la casa non è occupata.
      'She said (that) the house is not occupied.'

If the object clause is in the subjunctive, some speakers allow the omission of *che*, but not all (as indicated by the asterisk within parentheses below):

(72) Pensa che la casa non sia occupata.
      (*)Pensa la casa non sia occupata.
      'She thinks (that) the house is not occupied.'

Only embedded clauses can bear the subjunctive mood except in highly stylized exclamations, such as:

(73) Maledetto sia il giorno in cui ti ho conosciuto!
      'Cursed by the day (in which) I met you!'

Thus subordinate clauses in Italian are obligatorily clearly marked, either by way of *che* or by way of the subjunctive mood. We, therefore, would predict that Italian could not have the Para-So construction.

In fact, while Italian has Sub-So sentences exactly parallel to that in (2) above, it has no Para-So construction:

(74) Fa così caldo che me ne vado.
      'It's so hot I'm leaving.'

(75) *Me ne vado, fa così caldo.
      'I'm leaving, it's so hot.'

Example (75) is grammatical, of course, as two separate sentences, but not as one (and see section 3 for relevant discussion).

Thus our correlation appears to hold (to varying degrees) in this small sampling of languages: the Para-So construction, which has no overt connector at the juncture point between the two clauses, is not possible in languages that obligatorily and clearly distinguish their subordinate clauses from their matrix clauses by such factors as complementizer, mood or word order.

Interestingly, Italian has a separate construction in which two clauses appear, where the second is introduced by *che*, but the second clause is not an object clause nor is the semantic relationship between the two clauses fixed (as it typically is when one clause is a matrix and the other subordinated):

(76) Scappo che il treno parte.
      literally: 'I'm leaving that the train is departing'

When asked to paraphrase this sentence not using *che*, many speakers substitute *perchè* 'because':

(76) Scappo perchè il treno parte.
      'I'm leaving because the train is departing.'

Other Italians, however, feel uncomfortable with any simple paraphrase, insisting that the train's departure is only loosely connected to the fact of my leaving, and that the situation in which the sentence is used must be known before a single paraphrase can be given. Examples can be found that confound most Italians. For example:

(78) Aspetta che vengo.
      literally: 'Wait that I'm coming.'

At least two paraphrases come up often when we present this sentence to Italians:

(79) Aspetta perchè vengo.
      'Wait because I'm coming.'
(80) Aspetta finchè non venga.
      'Wait until I come.'

But neither is judged satisfactory even by the speakers who suggest them. Some speakers offer instead two independent sentences:

(81) Aspetta. Vengo.
      'Wait. I'm coming.'

But then they hesitate and search for something better, and in the process they often mutter about how this construction probably is not 'grammatical' anyway and we should not be asking about it.

We know of only passing reference to this construction in the literature on Italian. For example, Lepschy & Lepschy (1981) list this use of *che* under relative pronouns, giving the example (p. 115):

(82) E arrivato che stavamo ancora mangiando.
      'He arrived that we were still eating.'

Yet there is no head that the clause introduced by *che* could possibly be modifying and they, understandably, do not pursue it, mentioning that some uses of *che* correspond to *quando* 'when'. Interestingly, they say the construction has a literary tradition, although they note that today it is typical of very informal speech (such as the speech discussed in Berretta, 1977; Berruto, 1978, 1980; Berruto & Berretta, 1977).

It appears that the *che* in such sentences as (76), (78) and (82) is present only to allow us to glue together the two clauses syntactically. We know of no evidence that the second clause is truly subordinated to the first.[16] But what is clear is that the semantic relationship is underdetermined by the grammar. Instead, we need context. The interpretation process would proceed much as Tommola (1978:56) describes the interpretation process in ataxis, whereby the listener uses context and normal background experience to interpret the relationships that are left undefined by the syntactic structure. While in ataxis no marker of syntactic relationship is present, in the Italian sentences a deceptive (with regard to semantic relationships) marker of syntactic relationships is present (the subordinating *che*). In both types of constructions (ataxis and our Italian construction in (76), (78) and (82)), the speaker needs to use extragrammatical mechanisms in order to properly interpret the utterances.

Another thing that the Italian construction and the Para-So construction have in common, perhaps paradoxically, is that the grammar forces the listener to integrate the two clauses (although extragrammatical mechanisms help the listener figure out how to do this). In the Italian construction this happens via the presence of the complementizer *che*. In the Para-So construction this happens via the prosody; the two clauses are pronounced as one intonational whole.

A final result of our analysis of the Para-So construction is that we must admit that syntactic juxtaposition can correspond to semantic subordination. That is, the *so* clause gives the cause of the event of the first clause and thus could be called semantically peripheral to the first clause. In this way the Para-So construction has many similarities to the asymmetric uses of *and* studied by Schmerling (1975) and Haiman (1985), among others (where, however, the second conjunct does not display the full range of behaviour we would expect for a matrix clause, in contrast to the second clause of our

[16] Unfortunately it is difficult to find ways to test the syntactic constituency of sentences like (76), (78) and (82). They are exclamatory in function (like Para-So sentences) and, thus, are not open to questioning or movement rules (such as topicalization or dislocation).

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Para-So construction). Indeed, the Para-So construction, like asymmetric co-ordination constructions, underlines the fragility of the distinction between subordination and co-ordination.

The disparity between syntax and semantics of the Para-So construction is often noted by speakers when they are questioned explicitly. Like ataxis, this paratactic construction is felt to 'straddle' grammaticality (Bolinger, 1988). Speakers produce it with no hesitation. Yet when they are asked to consider it (say, from the point of view of what it means), they often conclude that it is deviant or substandard and want to end the discussion, just as speakers of Italian often try to derail a discussion of the construction exemplified in (76), (78) and (82). The Para-So construction, then, offers evidence for the ever more firmly established claim that syntactic structure and semantic structure are not isomorphic (as in Williams, 1980, 1982, 1983; Napoli, 1989).

Authors' addresses: Jacob Hoeksema   Donna Jo Napoli,
                      Faculteit der Letteren,   Department of Linguistics,
                      Rijksuniversiteit Groningen, Swarthmore College,
                      Postbus 716,   Swarthmore, PA 19081
                      9700 AS Groningen,   USA.
                      The Netherlands.

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