

A DEPENDENCY ANALYSIS OF COORDINATION? YES PLEASE, BUT WITHOUT THE GAPS.

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Though in agreement with the main thrust of Springer & Starosta's paper, which is that if the grammar as a whole is based on dependency then coordination should and can be too, this paper argues that they are wrong to see gaps as occurring in any type of coordination except, *perhaps*, gapping. However, there is a construction which genuinely does involve deletional gaps, but although this construction accounts for Right Node Raising, it is distributionally independent from coordination.

Keywords: Coordination, Dependency Grammar, Gapping, Right Node Raising, Word Grammar.

1. INTRODUCTORY

It is well known that Word Grammar (WG), arguably the current benchmark model of Dependency Grammar (DG), has held that coordination should be handled by constituency rather than dependency. Within the Lexicase model of DG, which is closely akin to WG, Springer & Starosta (1997)[1] (henceforth S&S) argue that coordination can be adequately handled by dependency. Working within, or from a basis of, WG, (Rosta 1997: chh. 3–4)[2] has argued for the same conclusion that S&S are advocating, presenting a model of coordination that not only completely dispenses with the need for constituency but also, it is claimed, is more explicit and comprehensive than earlier WG treatments of coordination. The

[1] This paper is a response to that given by Springer & Starosta at CIL16, rather than on the version of that paper in this volume, which I have not yet seen. In my response delivered orally at CIL16, I was unable to include the remarks in §5 below, due to time constraints.

[2] It is worth mentioning that this work was informed by discussions with Stan Starosta on the DG-list email discussion group, wherein he presented an early version of the ideas in S&S's paper.

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model in (Rosta 1997) further agrees with S&S in advocating the basic dependency structure in (1a), rather than, say, (1b), which is proposed in (Melc<uk 1988).

(1) a. [[A], [B], [C] and [D]]

b. [A, [B, [C [and [D]]]]]

I therefore wholeheartedly agree with S&S's key contention – that within a DG, even coordination can satisfactorily be handled by dependency. In what follows I merely wish to dispute that S&S's gap-based analysis is appropriate for at least some principal varieties of coordination.

2. CORRELATIVES

The position of 'correlative conjunctions'[3] such as *either* in *either tea or coffee* is usually described as being just before the first conjunct (cf. e.g. Quirk *et al.* 1985). (Hudson 1984) offers the structure {either [tea] or [coffee]}, with the conjunctions within the coordination but outside the conjuncts, and (Hudson 1990) revises this to {[either tea] [or coffee]}, with the conjunctions within the first and last conjuncts.[4] (Rosta 1997) proposes the structure in (2).

(2) [either [[tea] or [coffee]]]

Since S&S advocate the exocentric structure [[tea] or [coffee]], one would expect them by extension to naturally favour an exocentric structure like (2). But in fact S&S's analysis entails a radically different structure, as I shall show.

[3] I am describing these as conjunctions merely in order to avoid an irrelevant debate about their category. Rosta 1997 takes them to be pronouns.

[4] In Hudson's notation, curly brackets enclose coordinations and square brackets enclose conjuncts. Both coordinations and conjuncts are kinds of phrase.

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(3a–b) are shown with the analysis S&S would give.[5]

(3) a. I know that [[she sang] or [__ danced]].

b. I know that [[she gave tulips to Joe] or [__ roses to Edgar]].

If the correlative occurred in an initial position, e.g. according to the pattern of (2), then S&S incorrectly predict (4a–b).

(4) a. * I know that [either [[she sang] or [__ danced]]].

b. * I know that [either [[she gave tulips to Joe] or [__ roses to Edgar]]].

Given the actual location of the correlative, S&S must instead go for the structures in (5a–b).

(5) a. I know that [[she either sang] or [__ danced]].

b. I know that [[she gave either tulips to Joe] or [roses to Edgar]].

The rule would then be that the correlative is placed in the initial conjunct immediately after the elements corresponding to the gap in noninitial conjuncts. It is entirely unclear what the internal structure of the initial conjunct would be. There is a dependency between *either* and *or*, since *either* is possible only if *or* is present, so *either* cannot simply be ignored as, say, some kind of extrasyntactic processing-aid.

Note further that in the case of the gapping construction (on which see §5), this rule of correlative placement would incorrectly predict (6a) instead of (6b).

(6) a [Sophy had drunk (*either) too little] or [Edgar __ too much].

b. (%Either) Sophy had drunk too little or Edgar __ too much.

[5] Gaps are notated by __. They are interpreted as if filled by a counterpart of a 'filler', which is underlined.

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While none of this is in itself evidence against S&S's application of a gap-based analysis to these coordination constructions, it does indicate that their analysis leads to consequences that are rather more dubious and inelegant than first appearances might suggest.

3. COORDINATED REGENTS

More convincing evidence against S&S's gap-based analysis. Consider (7a–b), on a reading where *the king and prince* refers to two different individuals.[6] Observe that (7a–b) are essentially analogous to (8a–b), the difference between (7a–b) and (8a–b) being in the direction of subordination between subject and predicate.

(7) a. the king and prince who revere each other

b. * the king and prince who reveres himself

(8) a. The king and prince revere each other.

b. * The king and prince reveres himself.

S&S claim that (7a–b) have the structure (9a–b). Since (9a–b) are variants of (10a–b) respectively, there is an incorrect prediction that the grammaticality of (7a–b) should be the reverse of what it actually is.

(9) a. the [[king __] and [prince who revere each other]]

b. the [[king __] and [prince who reveres himself]]

(10) a. * the [[king who revere each other] and [prince who revere each other]]

b. the [[king who reveres himself] and [prince who reveres himself]]

[6] (Rosta 1997)'s analysis would assign this the gapless structure in (i). The means by which *who revere each other* modifies both *king* and *prince* will not be explained here.

(i) the [[king] and [prince] [who revere each other]]

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4. 'HACKING'

The arguments in §2 and in particular the evidence in §3 shows that a gap-based analysis is inappropriate for coordination proper. However, it remains the case that something very like a gap-based analysis is required for a certain construction that can affect coordinate structures.

(Hudson 1976) pointed out that Right Node Raising (RNR), exemplified in (11), is an instance of a more general construction that is not restricted to coordination; cf. (12). This more general construction might appropriately named 'hacking', which is what Hudson (1976: nn. 1–2) has called RNR.

(11) She tried to buy __ and he tried to avoid buying tangas that he would be expected to wear day in day out.

(12) In a recent government survey, those who like __ outnumber by five to one those who dislike eating for breakfast fried bananas sprinkled with cinnamon.

(Rosta 1997) argues that other forms of coordination, exemplified in (13) (adapted from examples in Milward 1991 and Pickering & Barry 1993) and (14), are also examples of hacking.

(13) He said that she __ and she said that he was being unreasonable.

(14) Her mother's parents were Welsh and __ father's parents were Czech.

For hacking, (Rosta 1997) advocates an analysis that is tantamount to a gap-based or deletion-based analysis – i.e. an analysis that in essence is the same as S&S's. Hacking seems to be functionally motivated by the speaker's desire to avoid repetition and referential ambiguity, and, restricted as it is to formal, high-register usage, it seems rather as if hacking is something of a grammatical interloper, foisted upon a grammar of which hacking is not a natural part: although (Rosta 1997) shows that there is an overall structural constraint on hacking, there are no construction-specific constraints on it, and its application is wholly oblivious to any specifics of the constructions in the sentence.

Hacking requires that the gap be understood as if filled by words with morphological properties identical to those of the 'filler' (i.e. the underlined words). Hence the

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grammaticality pattern shown in (15–16),[7] which is very different from that generally found in coordination, wherein coordinated singular nouns behave jointly like a plural noun.

(15) a. * Sophy loves a prince __, and Anne loves a king who revere each other more than all else.

b. Sophy loves a prince __, and Anne loves a king who reveres himself more than all else.

(16) a. He knows she __ and she knows he is here.

b. * He knows she __ and she knows he are here.

c. * He knows she __ and she knows they is here.

d. * He knows she __ and she knows they are here.

5. GAPPING

(17) is an example of gapping. The putative gap is indicated by __, and the 'remnants' are bracketed.

(17) Sophy loves Edgar, and Edgar __ Sophy.

For this construction, (Rosta 1997) proposed a gapless analysis with the structures in (18a) or (18b), depending on idiolect. In either case, the second token of *Edgar* and *Sophy* are respectively subject and object of *loves*.

(18) a. [[Sophy loves Edgar], and [Edgar] [Sophy]].

b. [Sophy loves Edgar, [and [Edgar] Sophy]].

[7] Although the grammaticality status indicated for (15a–b) is correct for most speakers, there appear to be a minority, mostly North Americans, who accept both of (15a–b). (As I would expect, I have not found anyone who finds (15b) less acceptable than they find other examples of hacking.) The only DG-based analysis that I am aware of that could accommodate (15a) is that in (Pickering & Barry 1993), which is not gap-based, but as formulated this is restricted to coordination rather than generalized to other hacking examples like (12).

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For reasons that are too theory-internal to go into here, this analysis fails to predict the order of the remnants: it incorrectly predicts that *Sophy loves Edgar and Sophy, Edgar* ought to be possible with the same meaning as (17).

This problem would be solved by a gap-based analysis if the gap were treated as the result of deletion: (17) would be equivalent to *Sophy loves Edgar, and Edgar loves Sophy*, so the order of the remnants in (17) would be for the same reasons as the order of *Edgar* and *Sophy* in *Edgar loves Sophy.* But a gap-based analysis itself faces problems.[8] Consider the data in (19a–b), shown with grammaticality for three different attested lects.

(19)		A	B	C	
	a.	OK	OK	*	She <u>likes</u> him, and he __ her.
	b.	*	OK	OK	She <u>likes</u> him, and him __ her.

The problem lies with lects B–C. If the second conjunct is syntactically equivalent to **him loves her*, then the use of *him* rather than *he* should render (19b) ungrammatical.

Certainly hacking does not allow anything analogous to (19b): *She knows that he/*him __ and he knows that she/*her was lying.* There are many further differences between gapping and hacking. One is that the 'filler' in gapping must have a subject (Hudson 1989).[9] Another is that the reconstructed gap needn't be morphologically identical to the 'filler':

(20) a. She knows that he __ and he knows that they *is/*are here.

b. She <u>loves</u> them and they/them __ her. [cf. (20c)]

c. She <u>loves</u> them and they love/*loves her.

Given the problems besetting both a gap-based and gapless analysis of gapping, it appears that a satisfactory DG analysis of gapping still eludes us.

[8] These problems were in turn solved by the analysis in (Rosta 1997).

[9] As formulated, that constraint still overgenerates, but at any rate no such constraint, or any resembling it, applies to hacking.

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6. CONCLUSION

S&S contend that a dependency-based analysis of coordination is possible within an overall dependency-based grammar. I would support this contention. Moreover, I agree with S&S that in the tree formed by projective dependencies, the conjunction is the root. But S&S further argue that except in the simplest kind of coordination, conjuncts contain gaps that are interpreted as if filled by a counterpart of a filler in the initial conjunct. I have shown that this is incorrect for complex coordination and coordination with coordinated regents. In the case of gapping, there are both attractions and problems with a gap-based analysis, and it is too early to say what shape a satisfactory analysis would take. The hacking construction, which subsumes RNR, cries out for a gap-based analysis (though even here, this is not the whole story – cf. note 7), but hacking is a construction independent from coordination.

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