

Coordination. A minimalist approach.

Janne Bondi Johannessen, University of Oslo PhD dissertation, 1993.

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Janne Bondi Johannessen's thesis *Coordination* (University of Oslo, 1993) is presumably the first thesis to have come out in Europe that is adorned with the subtitle *A minimalist approach*. The fact that this work has developed independently from Chomsky's and Kayne's recent work (see Johannessen 1994:113) testifies to the clear-headedness of J's approach.

I see it as the most important contribution of the research reported in this thesis, that coordinated structures are analyzed within the boundaries of a highly restrictive theory of phrase structure. In this respect, C is an implementation of a research program initiated by Munn (1987), and subsumed in Kayne (1993). It deviates from earlier approaches in which coordination was analyzed in terms of ternary branching or multi-dimensional representations.

The second important contribution of this book is of an empirical nature. Partly through a query on the Linguist List, J has collected an impressive amount of data of coordination in a large variety of languages. As far as I have been able to ascertain, J has carefully analyzed the data, eliminating several cases which on closer scrutiny turned out not to be relevant.¹ In presenting this material, J has managed to convince me that what everyone knows as an oddity of individual languages, the unbalanced coordination, is a structural phenomenon of language that should not remain cast aside. Undoubtedly, this descriptive part by itself will be of service to linguists of all persuasions for many years to come. (In this connection, J must also be complimented for the useful language index.)

What is most gratifying, however, is that the empirical material has been put to excellent use as part of an argumentation for the conceptual point mentioned earlier, namely that coordination structures ought to be analyzed in a restrictive theory of phrase structure. Precisely the phenomenon of unbalanced coordination, which presents solid proof of the asymmetry within a coordinated structure, makes it hard to settle for less than a two-dimensional, binary branching analysis.

The argumentation is very elegant. A coordinated structure [A&B] has a syntactic function in the sentence. Assume that this syntactic function is expressed by morphology, e.g. Casemarking by a licenser. It is the relation between the licenser and the conjuncts that is relevant here. In the normal case, A and B both show the morphology that relates them to the licenser. This J calls *ordinary balanced coordination*. Crosslinguistically, however, there turn out to be more possibilities: either none of the conjuncts shows the expected morphology (which J calls *extraordinary balanced coordination*) or the expected morphology shows up on just one of the conjuncts (*unbalanced coordination*). In the latter case, there turns out to be a correlation between the VO/OV status of the language and the choice of the conjunct carrying the expected morphology: in VO languages, this is the first conjunct, and in OV languages, the second. This leads one to conclude that in unbalanced coordination constructions, only the conjunct closest to the licenser is in construction with the licenser (in a pretheoretical sense).

The generalization concerning unbalanced coordination favors a two-dimensional analysis over a three-dimensional analysis (unless morphology is considered to be regulated after linearization of the multi-dimensional structure). It also favors a binary branching analysis over a ternary branching analysis. In a ternary branching analysis, one conjunct is not hierarchically superior to the other. The favored position of one of the conjuncts in unbalanced coordination, then, must be an effect of adjacency. But adjacency, unless derived from specifier-head agreement configurations or head-complement configurations, does not play a role in present day conceptions of licensing relations. Therefore, given the present state of the art, the phenomenon

of unbalanced coordination can only be analyzed in terms of hierarchic, binary branching, two-dimensional structures.

Assuming that licensing relations involve specifier-head configurations, and accepting the possibility of features percolating up or down the main projection line, unbalanced coordination is not at all an unexpected phenomenon.² If [A&B] occupies the specifier position of a projection headed by some licenser C, and & is the head, and A the specifier, of [A&B] (more properly represented as [A[&B]]), we expect A to be licensed by C via spec-head agreement of A and & and spec-head agreement of the projection of &, [A&B], and C. Crucially, what we do not expect is for B to be in construction with C in the same way as A is. As J shows, B typically receives default morphology in unbalanced coordination constructions.

From the same perspective, extraordinary balanced coordination, in which both A and B show default morphology, can be described if we assume that something goes wrong in this 'transitive' licensing process, in which A agrees with C because A agrees with &, the projection of which agrees with C. J (p. 92) assumes that in this type of constructions, [A&B] itself cannot enter into the relevant licensing relation, which somehow sounds less plausible to me. Stahlke's (1984:360) example *Them and us are going to the game together* (quoted on p. 58) shows that there is agreement between the coordinated construction and the head licensing number agreement. This makes it hard to maintain that [A&B] is not in construction with a functional head (or, in minimalist terms, is not involved in checking N-features). Rather, it seems the case that the individual members A and B are not assigned Case, perhaps because of a failure of percolation of the relevant features. But these are technicalities. The point remains that the structure assumed by J makes it easy to account for what have appeared to be weird phenomena for a long time.

J presents her case so convincingly that it becomes hard to understand how ordinary balanced coordination (in which both A and B are in construction with C) can be a phenomenon of language at all. J's account of ordinary balanced coordination is less satisfactory (p. 94f). Basically, J considers it to be a lexical feature of the conjunction that the features of A are required to be on B as well. This is little more than a rephrasing of the phenomenon. A more interesting approach might have capitalized on the possibility of there being actually two conjunctions in a simple coordinated construction, as in (1).

(1) [A & [B &]] (order irrelevant)

Agreement between A and B (and with the licenser C outside the coordinated construction) can then be analyzed as being parasitic on the head-head agreement of the two conjunctions.

Multiple coordination, as in (1), is a familiar phenomenon from languages like Latin and Greek. Although I know of no languages where multiple coordination is actually obligatory, the wide spreadedness of the phenomenon might be taken to suggest that coordinations actually contain as many conjunctions as conjuncts. This possibility is not explored in the thesis.

J briefly discusses 'discontinuous conjunctions' of the type *both A and B* (p. 105). She shows that the *both* element in this type of construction has a funny status, as it may be moved away from the *A and B* part. This, however, does not in principle argue against an analysis in which *both* originates as a head within the coordinated construction (as is also argued by Kayne 1994). Still, *both* adds a distributive reading to *A and B*, which suggests that it should be treated separately from an ordinary *A and B* construction, which might originate as a complement to the distributive head *both*.

It would be interesting to study multiple conjunction on a larger scale. If ordinary balanced coordination is a matter of concatenation of spec-head agreement and head-head agreement, all coordinated constructions might show multiple coordination (and the Latin type coordination

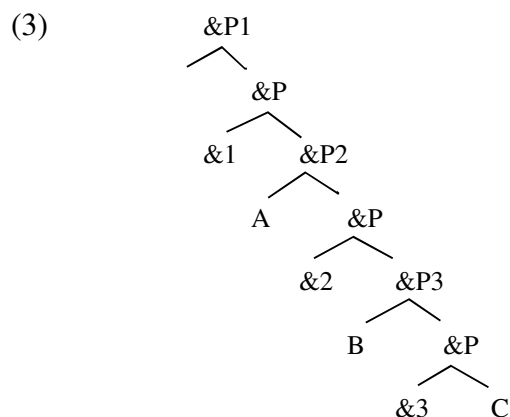
must be regarded as prototypical). This would lead one to believe that the complement of *both* is in fact something like (1). This predicts that not all multiple conjunction structures in the world's languages have a distributive reading, something worth looking into.

Multiple conjunction phenomena have led Grootveld (1993) to conclude that the proper representation of coordination involves multiple dimensions. But if we assume that there is a conjunction for each conjunct, no such conclusion is warranted. Consider the following facts from Dutch.

- (2) a. en A en B en C kochten een auto
and A and B and C bought a car
b. en A en en B en C kochten een auto
and A and and B and C bought a car

(2a) has at least two interpretations: one in which A, B, and C each individually buy a car, and one in which (for instance) B and C together buy a single car. In the first case, we end up with three cars being sold, in the second case, with two. In other words, B and C form a group in the second reading of (2a), something we wish to represent in the X-bar structure of *en A en B en C*.

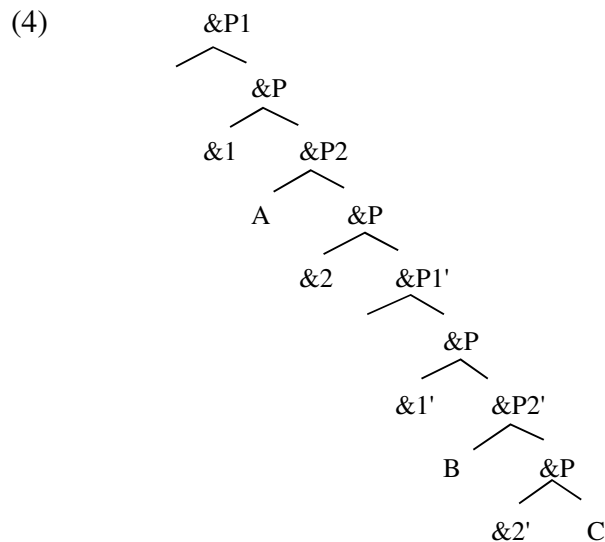
A plausible binary branching structure of (2a) is (3) (the structure in (3) abstracts away from the surface ordering of the elements involved, in which the agreement relations would be more properly expressed):



How can we read the different readings of (2a) off of the structure in (3)? &P3 is a complement of &2. The two readings of (2a) can now be formulated as follows: &P3 is transparent in the distributive reading of (2a), in which we end up with three cars being sold, and &P3 is opaque in the group reading of (2a), leading to only two cars being sold. However, the structure in (3) does not allow us to derive this difference, since the relation between &2 and &P3 is the same in both cases.

I believe that the construction in (2b) provides the clue to the solution of this problem. The interpretation of (2b) is that B and C constitute a group of which each member individually buys a car. For some reason, which does not concern us here, the group B and C is set apart from A (perhaps indicating that there have been only two buying events), just like in the group reading of (2a). But unlike the group reading of (2a), and like the distributive reading of (2a), we end up with three cars being sold. Let us call the reading of (2b) a 'layered distributive' reading.

Structurally, the second *en* conjunction from the left in (2b) takes the group *en B en C* as its complement. There is, then, a one-to-one correspondence between the number of conjuncts and the number of conjunctions. This leads to a structural representation like (4):



In (4), *&P1'* is the second conjunct of the root coordinated structure, just like *&P3* in (3), but *&P1'* itself is a coordinated structure, unlike *&P3* in (3).

If (4) is a correct representation of the group character of *(en) B en C* in (2b), the group reading of (2a) should be represented in the same way. This implies that (2a) is actually structurally ambiguous between (3) and (4), the distributive reading corresponding to (3), and the group reading corresponding to (4).

If this is correct, we are led to two conclusions. First, the difference in interpretation between the group reading of (2a) and the layered distributive (2b) is not a matter of structure. In both cases *(en) B en C* is structurally represented as a group. This contrasts the group reading of (2a) and the layered distributive (2b) on the one hand with the distributive reading of (2a) on the other. Consequently, the difference between the group reading of (2a) and the layered distributive (2b) must be expressed in terms of the nature of the conjunction *&I'* (cf. (4)). In the layered distributive (2b), this must be a distributive conjunction, comparable to English *both*. In the group reading of (2a), *&I'* must be a non-distributive conjunction, which remains empty in Dutch and English.

The second conclusion is, that since this empty conjunction is needed to express the non-distributive group interpretation of *B en C* in (2a) (i.e., *&P1'* in (4)), simple non-distributive conjunctions like *A and B* must involve an empty non-distributive conjunction as well. Hence, *A and B*, in the non-distributive reading, is more properly represented as \emptyset *A and B*.

This supports the idea that the number of conjunctions always equals the number of conjuncts. On this analysis, ordinary balanced coordination can simply be analyzed as involving an additional step, namely head-head agreement between the two conjunctions.

The proper analysis of agreement within the coordination phrase presumably requires the adoption of functional projections inside the coordination phrase, allowing conjunctions and conjuncts to move in order to generate word order variation. As the structures in (3) and (4) stand, the rightmost conjunct cannot agree with the rightmost conjunction, since conjunct and conjunction are in a head-complement relation. This aspect has been ignored in the discussion above.

Word order variation within coordinated constructions is also a topic which J's thesis clearly puts on the research agenda. The generalization that the position of the agreeing conjunct in unbalanced coordination correlates with the position of the head in the general phrase structure schema looks extremely strong. Of the 6 potential counterexamples, Afrikaans, Dutch, Estonian, German, Homeric Greek, and Vedic, 3 are Germanic OV languages which have recently been

reanalyzed as VO languages (Zwart 1992). This clearly strengthens the typological generalizations made in J's book.

It would have been interesting to see a discussion of the word order variation in coordination, and of the variation regarding which of the conjuncts is the regular one in unbalanced coordination, in the context of Kayne's (1993) conjecture that heads and specifiers are invariably to the left. J crucially relies on the reality of a basic OV/VO distinction in her analysis of unbalanced coordination. Thus, in an OV-language, it is the second conjunct which is in construction with the licenser outside the coordinated construction. To account for this, J assumes that the relevant languages have a specifier position to the right, occupied by the second conjunct, which then agrees with the outside head, also positioned to the right.

If Kayne is right, the OV order must be derived by movement, and so must the order of the conjuncts within the coordinated construction. It is not immediately clear how this can be worked out, which makes it understandable, though regrettable, that J refrained from tackling this question.

J's laudable preoccupation with issues of phrase structure extends to the rather tricky question of how coordinate structures come into being (in a phrase structural sense). It seems to me that here J's approach is not as compatible with the approach to phrase structure building in Chomsky (1992) as we are led to believe.

First off, simple coordinations like *A and B* can easily be derived in the bottom-up structure building procedure of Chomsky (1992). Insertion of such a chunk in a larger structure, for instance in the complement position of a verb, is a possibility that the structure building procedure does not exclude (contrary to what J suggests on p. 129). The question that arises, however, is whether *all* coordination phenomena can be described in terms of this bottom-up structure building process.

J argues that coordination always involves two or more CPs (see also Van Oirsouw 1987, Wilder 1994). Of the elements of these component sentences, those that match are *merged*, and those that do not match are *coordinated* (by a process called *coordinate alpha*).³ Van Oirsouw and Wilder, on the other hand, assume that matching elements *delete*. The merging approach and the deletion approach may be viewed as two opposing trends in theorizing about coordination. In opting for merging, J essentially sides with the factorization approach of Williams (1978) and the linearization approach of Goodall (1987).

It is unfortunate that the thesis does not contain an extensive discussion of the merging approach as compared with the deletion approach (see e.g. p. 113). Merging and coordinate alpha cannot but be viewed as additions to the structure building process of generalized transformation, whereas deletion merely makes use of zero copies of material elsewhere expressed.

There is much more that could be said about this thesis. For example, J's claim that extraction from coordinated constructions is constrained on grammatical rather than syntactic grounds (p. 133), does not seem to be supported by an adequate analysis of the relevant data. Since anything can be coordinated with anything in the coordinate alpha approach, there is no reason to analyze the conjunction reduction facts studied in Höhle (1983), Zwart (1991), and elsewhere as involving extraction out of the first conjunct (see p. 137).⁴

In all, however, the exploratory nature of much of the analysis is counterbalanced by the wealth of new material for the linguistic community to think about.

Footnotes

1. This is not to say that J's analysis of the data is beyond discussion. For instance, she consistently analyzes serial verb constructions as involving coordination rather than subordination (p. 33). I also disagree with the judgment

that Dutch *ik heb zij die elders wonen voor ogen* 'I am referring to they who live elsewhere' is less grammatical than when this sentence would be the second conjunct of a coordinated construction (p. 10). Significantly worse, however, is *Ik heb niet alleen de Kroaten voor ogen maar ook zij* 'I am not only referring to the Croats but also they (i.e. to them)'. Also, (56b) on p. 100, which should include a conjunction *en* in front of the second conjunct, must be considered grammatical, rather than marginal. I'm not sure that additional cross checking would have eliminated the discrepancies, however. For many languages, cross checking was probably not even a possibility within the limits of the research project leading to this thesis.

2. Percolation appears to have been introduced in grammatical terminology by Dougherty (1968), as part of an analysis of coordination.

3. 'Merging' in this sense should not be confused with 'merging' in the sense of Chomsky 1994, in which it is used as a different term for 'generalized transformation'.

4. J's analysis of these constructions on p. 118, illustrating the merge operation, also ignores the possibility of coordinating unlike categories.

References

- Chomsky, N. (1992) 'A Minimalist Program for Linguistic Theory'. *MIT Occasional Papers in Linguistics* 1.
- Chomsky, N. (1994) 'Bare Phrase Structure'. *MIT Occasional Papers in Linguistics* 5.
- Dougherty, R.S. (1968) *A Transformational Analysis of Coordinate Conjoined Structures*. Unpublished MIT dissertation.
- Goodall, G. (1987) *Parallel Structures in Syntax. Coordination, Causatives and Restructuring*. Cambridge: Cambridge University Press.
- Grootveld, M. (1993) 'An underspecified approach to parsing coordination'. Paper presented at the University of Groningen.
- Höhle, T. (1983) 'Subjektzlücken in Koordinationen'. Ms., University of Cologne.
- Johannessen, J.B. (1994) 'Coordinate-Alpha'. In *Console 1 Proceedings*, P. Ackema and M. Schoorlemmer, eds., The Hague: Holland Academic Graphics, 99-114.
- Kayne, R.S. (1994) 'Coordination'. University of Groningen guest lecture, October 3.
- Kayne, R.S. (1993) 'The Antisymmetry of Syntax'. To appear Cambridge: MIT Press.
- Munn, A. (1987) 'Coordinate Structure and X-bar Theory'. *McGill Working Papers in Linguistics* 4.
- Oirsouw, R.R. van (1987) *The Syntax of Coordination*. London: Croom Helm.
- Stahlke, H. (1984) 'Independent and clitic pronouns in English'. In *Papers from the Chicago Linguistic Society*, Chicago, 358-364.
- Wilder, Chr. (1994) 'Coordination, ATB, and Ellipsis'. In *Minimalism and Kayne's Asymmetry Hypothesis*, C.J.W. Zwart, ed., Groninger Arbeiten zur germanistischen Linguistik, University of Groningen, 291-329.
- Williams, E.S. (1978) 'Across The Board Rule Application'. *Linguistic Inquiry* 9, 31-43.
- Zwart, C.J.W. (1991) 'Subject Deletion in Dutch: a difference between Subjects and Topics'. In *Language and Cognition 1*, M. Kas, E. Reuland, and C. Vet, eds., University of Groningen, 333-349.
- Zwart, C.J.W. (1992) 'SOV Languages are Head Initial'. Paper presented at the 8th Comparative Germanic Syntax Workshop, Tromsø, November 21. To appear in *The Linguistic Review* as 'Dutch is Head Initial'.