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**Plural Reference and the Interpretation of Three-dimensional Syntactic Structures**

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The various syntactic phenomena peculiar to coordination, such as ATB extraction, right node raising, and gapping, had motivated three-dimensional syntactic analyses of coordination. The main idea of such analyses is that while movement may apply to the various planes of a three-dimensional syntactic structure at once (leading to a shared node), syntactic rules and conditions apply to each plane individually. Thus standard syntax applies to individual planes, whereas coordination-specific syntactic rules apply to three-dimensional syntactic structures as such. This talk will be based on the particular conception of three-dimensional syntactic structures in Moltmann (1992) and explores a novel interpretation of such structures based on plural reference, an interpretation that promises an unambiguous interpretation of conjunction.

 While Moltmann (1992) shares the main syntactic ideas with other three-dimensional syntactic theories such as that of Goodall and Muadz, the account proposed a particular way of interpreting three-dimensional syntactic structures, in particular in order to deal with expressions or constructions requiring plural antecedents in coordinate sentences containing only singular NPs such as (1a-d) below:

(1) a. *John came and Mary left without talking to each other.*

 b. *On the same day John watched a movie and Mary a game.*

 c. *A man entered and a woman left that had known each other for ten years.*

 d. *The man and the woman who live in the same building like each other.*

The idea was that within a three-dimensional structure, *John* and *Mary* in (1a), which occupy separate planes (containing *John came* and *Mary left* respectively), are implicitly coordinated, which means they are dominated by the same DP node. Similarly *came* and *left* are implicitly coordinated, dominated by the same V-node. Such more complex three-dimensional syntactic structures will involve two sorts of logical forms as the basis of two partial interpretations which later are unified to form the meaning of the sentence. One logical form (LF1) will be based on the material involving explicit coordination ‘John came and Mary left’, the other (LF2) will be based on material involving implicit coordination ‘John (and) Mary came (and) left without PRO talking to each other’. The latter will involve the interpretation of the coordinated NPs as a plural NP referring to the sum of the semantic values of the singular NPs which will then provide the semantic antecedent of PRO and *each other. Similarly the implicit coordination of came and left will describe the sum of an event of coming and of leaving*. The interpretation of LF1 neglects the association of John with the coming and Mary with the leaving, but only cares about the two being involved in a complex event of coming and leaving while not talking to each other. The interpretation of LF2 disregards the contribution of the expression requiring a plural antecedent, *without talking to each other*.

 I will explore a reinterpretation of this approach based on plural reference, which promises not only conceptual advantages regarding the status of pluralities and the compositional semantics of three-dimensional syntactic structures, but also a unified treatment of coordination with *and*, which unlike the previous account need not distinguish between *and* expressing sum formation (for conjoined referential NPs) and expressing logical conjunction.

 Plural reference is the view that a plural NP refers to several individuals at once, rather than referring to an entity that is a plurality (a sum or collection of individuals). Thus, *John and Mary* refers to John and Mary at once, rather than referring to the sum consisting of John and Mary. Plural reference has been pursued mainly by philosophical logicians (Oliver/Smiley, Yi, Linnebo, Rayo, McKay, Simons), and contrasts with the view that has become standard in linguistic semantics, namely reference to a plurality (a sum or set) (Link, Landman, Lasersohn, Schwarzschild, Moltmann 1995). Plural reference accounts for the rather strong intuition that a sentence like *John and Mary are nice* evaluates just John and Mary, not their sum, and it accounts for the truth of *John and Mary are two*, which is hard to account for if *John and Mary* stands for a sum.

 Plural reference is particularly suitable as the interpretation of coordinated NPs on a three-dimensional syntactic analysis, much better so than reference to a plurality. On a three-dimensional analysis, *John and Mary* will be dominated by a single DP node. Each plane contains just an ordinary singular NP (*John* and *Mary* respectively) whose interpretation will yield a single individual. This already provides the interpretation of the entire conjoined DP, which will come out as standing for the two individuals John and Mary at once.

 On this account, *and* itself does not make a particular semantic contribution, neither expressing sum formation (as on the reference to a plurality view) nor logical conjunction. *And* in fact is not generally obligatory in coordinate structures on a conjunctive interpretation (*John, Mary, Sue, Bill were* invited is fairly ok). It is only the presence of *or* that will lead to a marked, disjunctive interpretation. This means that both the explicit coordination *John and Mary* and the implicit coordination in which *and* is absent but *John* and *Mary* are dominated by a single DP node can be interpreted in the very same way, as a DP plurally referring to John and Mary at once. The predicate will enter a single relation of predication (or theta-role assignment) to that DP so that it will be interpreted as being true of John and Mary at once (both collective and distributive predicates involve such plural predication with plurally referring arguments).

 This account can be generalized to other cases of coordination, to the effect that multiple simultaneous semantic values will be the unmarked interpretation of coordinate structures. For example, the very same kind of interpretation can be applied to conjoined predicates or modifiers dominated by a single category node, as in *the happy and innocent child* or *the child is happy and innocent*. Let us assume that the predicates on different planes will be interpreted as concepts. The conjunction then will enter a relation of predication to a DP or noun projection, which means multiple application of relevant semantic operations of predication or intersection to the concepts at once (that is, application of a plural function distributively understood). Again implicitly coordinated modifiers or predicates can be interpreted in the very same way.

 There are some coordinate structures that require a more complex account. For example, *that*-clauses with coordinated IPs cannot be treated like coordinated CPs, plurally referring to several propositions. *John regrets that he bought the book and did not read it* is not equivalent to *John regrets that he bought the book and that he did not read it*. IP coordination requires the unification of two propositions, let’s say as a single three-dimensional structured proposition. Another case is conjoined plural or mass nouns, as in *the men and women*, which require the formation of a complex plural predicate.