Number Matching in Copular Clauses

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This talk examines phi-feature matching patterns and restrictions in copular clauses with two NPs. The restrictions shift under conditions that seem to correlate with the traditional distinction between equative and predicational clause types, but closer inspection reveals that the relevant conditions are of a different kind. We begin with familiar contexts like (1) where we see a number matching requirement between the subject and predicate NPs. We assume a raising structure for the copula as in (3). These matching patterns obtain independently of the agreement on the copula, as shown by the bare small clause in (2).

 (1) a. Mary is *violinists/a violinist in two orchestras
     b. Mary and Jane are violinists/*a violinist in two orchestras
(2) a. They consider [Mary *virtuosos/a virtuoso]   (3) BE [NP1 … NP2]
    b. They consider [Mary and Jane virtuosos/*a virtuoso]
    In contrast, no such matching is required in (4) (the context here is a platter of fruit that has been arranged to look like a face).
(4) a. The nose is the kiwi/kiwis   c. The nostrils are the grape/grapes
    b. The banana is the eyebrow/eyebrows.   d. The berries are the eye/eyes
    The absence of a matching requirement in (4) is not simply a matter of the second NP being a definite description; we see matching with definite descriptions in (5).
(5) a. Mary is the best violinist/*violinists
    b. Mary and Jane are the best *violinist/violinists
    It is traditionally observed that in sentences like (1)/(2) the lower NP (henceforth NP2) is construed as a predicate (and the clause as predicational), whereas in (4) NP2 is referential (and the clause equative). Since sentences like (5) pattern as predicational under standard tests, it might seem that we are dealing with a straightforward surface generalization: number matching is required in predicational contexts (1), (2), (5) and not in equative contexts (4). However, we argue that this correlation between copular clause type and matching is inaccurate. There are counter-examples cross-linguistically (see Bondaruk 2013 for Polish) and in English we see predicational sentences like (6) where matching is not a requirement and is even degraded for some speakers.
(6) The proposals are a problem/??problems
    Percus and Sharvit 2014 (henceforth P&S) give compelling semantic evidence that undermines the traditional division between predicational and equative clauses (cf. Adger and Ramchand 2003, Moro 1997). P&S show that contrary to common assumptions, equative clauses are not reversible structures (A is B ≠ B is A). They propose a semantics for equatives in which NP2 must be a higher type than NP1. In their analysis, a Pred head mediates between a <e> type NP1 and <se> type NP2. P&S propose that even if the denotation of NP2 appears to be an individual (proper noun in their cases), the Pred head lifts the type to <se>, a set of properties (characteristic of NP2) that is ascribed to the subject NP1. P&S demonstrate that the type asymmetry between NP1 and NP2 is sharply detectable in mistaken identity contexts where the mistake-maker's belief world cannot felicitously include the individual concept denoted by NP2. We extend P&S's semantics to pronouns and other referring expressions in NP2 position. Thus, given the context in (7) (modeled after P&S), one can felicitously ask (8a), but not (8b) (because in this context Josef cannot ascribe the properties characteristic of bananas to anything). (8) shows that once the meaning is carefully controlled for, NP1 and NP2 are not reversible.
(7) Context: Josef is putting together a jigsaw puzzle that is supposed to be a bowl of fruit but he doesn't know that. He thinks he's making a face and is trying to jam a piece (with a banana on it, though he doesn't see it as such) into a slot where it won't fit, because he thinks it is going to make the eyebrows. His parents are watching. One says to the other:
(8) a. What does Josef think the banana is __? b. #What does Josef think __is the banana ?
    Returning to the feature matching problem, the puzzle is now more precise. Under the approach outlined above, the semantic status of NP2 is comparable in both predicational (1), (2) and equative contexts (4), and we argue that the functional structure is comparable as

well. We cannot correlate the presence/absence of the matching pattern to a copular clause type per se. Instead we correlate it to the feature structure of NP2, though we continue to use the terms predicational/equative as convenient labels. The matching configuration: We argue that obligatory feature matching is the outcome of a feature valuation process distinct from Agree (see below for why) in that it occurs automatically when a syntactic object with unvalued [_F] merges with one that has valued [F]. We call this Concord. We take the small clause to be a syntactic object formed by directly merging NP1 and NP2 (cf. Moro 2000, Chomsky 2013). If NP1 has valued number [#] and NP2 unvalued [_#] (or vice versa) then Concord will take place as a reflex of Merge. The distribution of valued and unvalued [#] is conditioned in various ways. A valued [#] feature only enters the structure on the D head of a referring expression, which we furthermore assume must be a phase head that has already spelled-out its complement. For present purposes we assume NP1 always bears [#]. NP2 however may or may not bear [#]. If NP2 has reduced functional structure, e.g Phi-P or NumP (cf. Dechaine & Wiltschko 2002, Cardinaletti & Starke 1999), then it will have unvalued [_#] rather than valued [#], and so Concord will be triggered and the matching pattern attested. This is the case for (1), (2). Similarly, if NP2 has defective (non-phasal) D it will not bear [#] but [_#] and will trigger Concord; this is what we argue for (5). The absence of matching effects: In some languages canonical predicates have such reduced functional structure (e.g. bare NP) that no number feature is introduced at all, with the effect that there is no Concord/matching in canonical predicational contexts (e.g. Persian where a canonical NP predicate must be singular). Another way we arrive at the same effect is if NP2 has extra structure (e.g. concealed CP layer) such that its [_#] feature is not accessible. We argue that this is the case with nouns like *problem* in (7). Finally, matching will be obviated if NP2 has valued [#] as in the case of the type shifted individual concepts, as in (4). It cannot be the case that number matching arises via Agree. This is because there are cases where concord on NP2 is suppressed yet Agree with the same NP takes place. For example, there are languages (e.g. Polish, Eastern Armenian) where equatives pattern like (4) w.r.t. matching but the copula agrees with NP2. If we modeled number matching as Agree we would have to designate NP2 as inactive w.r.t. the number matching Agree relation, but active w.r.t. clause-level Agree. Under our account there is no such tension: number Concord does not occur because NP2 is a type-shifted referential DP that enters the structure with [#]. Nothing about this precludes it from being an active goal for the phi-probe on T.

Our analysis of number matching reinforces the idea outlined in Moro (2000) and Chomsky (2013) that small clause structures are symmetric [NP1 NP2] structures (introduced by a PRED head) as opposed to asymmetric structures where the PRED head first composes with NP2. As noted by Chomsky/Moro, the symmetry of small clauses introduces problems for labeling that are resolved only if one constituent raises out of the small clause leaving the other to unambiguously determine the label. Under our analysis, whichever NP remains behind undergoes type shifting by virtue of composing with the Pred head that introduces the small clause. This analysis derives the irreversible semantics of the construction. Meanwhile, it paves the way for a new formulation of questions about the typology of copular clauses, particularly the (ir)reversibility of the various types.

REFERENCES: Adger, D. and Gillian R. 2003. Predication and equation. *Linguistic Inquiry* 34(3). 325-359. **Bondaruk, A. 2013.** Copular clauses in English and Polish: Structure, derivation and interpretation. Lublin, Wydawnictwo KUL, 371 pp. **Cardinaletti, A., and M. Starke. 1999.** The typology of structural deficiency: A case study of the three classes of pronouns. In H. van Riemsdijk (ed.) *Clitics in the Languages of Europe.* Walter de Gruyter: Berlin. 145-233. **Chomsky, N. 2103.** Problems of Projection. *Lingua* 130: 33-49. **Déchaine, R. and M. Wiltschko. 2002.** Decomposing pronouns. *Linguistic Inquiry* 33(3):409-442. **Moro, A. 1997.** *The raising of predicates: Predicative noun phrases and the theory of clause structure.* Cambridge: Cambridge University Press. **Moro, A. 2000.** Dynamic Antisymmetry. MIT, Cambridge, MA. **Percus, O. and Y. Sharvit. 2014.** Poster presented at Semantics and Linguistic Theory (SALT), New York University.