

## 5.

### Roberto Zamparelli - *Università di Bergamo* *On the thickness of plurals*

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Theories on the denotation of plural noun phrases come in two shapes: “flat” and “nesting”. The two theories assign the same denotations to relatively simple plural NPs such as *the boys* or *John and Mary*, but differ in more complex cases where plural NPs are syntactically embedded under a coordination. For instance, assuming that simple plurals denote sets and that the model contains 3 pigs, P1, P2 and P3, and 3 cows, C1, C2, C3 ((1a)), a flat theory always returns (1b), while the nesting theory returns a set of (sets of ...) sets which semantically mimics the level of syntactic embedding ((1c)):

- (1) a. [the cows] = {C1, C2, C3}, [the pigs] = {P1, P2, P3} (flat or nested)  
b. [[the cows] and [the pigs]] = {C1, C2, C3, P1, P2, P3} (flat)  
c. [[the cows] and [the pigs]] = {{C1, C2, C3}, {P1, P2, P3}} (nested)

If binary branching and strict compositionality are assumed, the gap between the two denotations widens, since (2a) with structure (2b) (marking the comma as “&”, an empty conjunction head) receives the nesting meaning (2c). Since we want to be able to deduce from (2a) that Sue, Mary, Bill and John (or any other order of conjuncts) left, it follows that in the nesting theory plural predicates need to be true of all the possible “nestings” of a plurality whenever they are true of its flat representation (i.e. {j, b, m, s}) (see Lasersohn 1995).

- (2) a. John, Bill, Mary and Sue left.  
b. [John & [Bill & [Mary and Sue]]] left  
c. left ( {j, {b, {m, s}}} )

Nested representations are cumbersome and, as such, undesirable. One well-known argument in favour of their existence comes from examples like (3), where the nested structure appears to model linguistic intuitions better than the flat one: the verb *separate* can directly apply to the distinct sets of pigs and cows contained in the outer conjunction; in a flat structure, the structure itself does not make clear that the separation is according to species.

- (3) The pigs and the cows were separated.  
separated ( { {...pigs...}, {...cows...} } )

However, Schwarzschild (1992,1996) points out that the effect in (3) may easily be overridden by means of additional modifiers (cf. (4)). This strongly suggests that a

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flat structure might after all be sufficient, provided we have a pragmatic system to impose partitions – or covers – “on the fly” over a flat plurality. A similar point is made by (5) (modified from Gillon 1987), one possible meaning of which could not reflect syntactic nesting.

- (4) The pigs and the cows were separated BY AGE.  
(young animals on one side, old animals on the other)
- (5) Rodgers, Hammerstein and Hart wrote whole musicals.  
possible meaning: write-w-m'(Rod,Ham) AND write-w-m'(Rod,Har)

The goal of this squib is to draw attention to another case, where a nested representation seems unavoidable. Consider (6a).

- (6) a. Serena and [Serena and Venus] will play on Tuesday and Wednesday.  
b. Serena and Venus will play on Tuesday and Wednesday.

If semantic representations feed pragmatic ones (as seems desirable in a modular system), and if we have a flat plural structure, (6a) ends up having the semantics for plurals expected for (6b) under any account, i.e.  $\{s, v\}$ . Yet no amount of pragmatic accommodation can make (6b) mean (6a) (a single and a double match), despite the fact that  $\{s\}, \{s, v\}$  is indeed a possible cover for [Serena and Venus] in (6b). A nested structure gets the right result here (i.e.  $\{s, \{s, v\}\}$ ). In addition, a nesting account can explain why (7) is worse than (6b) (despite their syntactic similarity), since here the two  $\{s, v\}$  sets do collapse:

- (7) ??[Serena and Venus] and [Venus and Serena] will play on Tuesday and Wednesday.  
= play\_on\_T/W( $\{\{v, s\}, \{s, v\}\}$ ) = play\_on\_T/W( $\{\{s, v\}\}$ )

Should we then go back to nested meanings with all their complexities? Not in all cases. One possibility is to assume that syntactically nested pluralities do have nested denotations, but that human languages have a type-shifting operator which flattens nested pluralities when necessary. This operator might be a last-resource device to cure predicate / argument mismatches in cases like (5), but it might also be obligatorily associated with ‘comma conjunctions’ like those in (2b), given the fact that cases like (6a) are impossible without a phonological spell-out of the first “and”.

## References

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