The Implications of Dependent Plural Readings

The Problem It is initially tempting to analyze plural NPs such as *dogs* as imposing a plurality requirement ("two or more") on the cardinality of the set of dogs. A Dependent plural (DepPl) reading is one wherein this requirement co-exists with the possibility of "one each". For example, the most natural interpretation of (1) is that each of my friends is attending a single good school, and this is not captured by the putative LFs (2a) and (2b). Yet, DepPls nonetheless must refer to something plural overall, which accounts for the inappropriateness of (1) if all the friends attend the same school.

One approach (e.g. de Mey(1981), Roberts(1990), Beck(2000)) to DepPls is to take them to be cumulative readings such as the one available in (3). However, while cumulative quantification may explain some DepPl readings, DepPl readings are possible in environments where numerical indefinites do not allow for cumulative readings. This can be seen in the contrasts between (4a-4b) and (5a-5b) where the first member of each pair lacks a cumulative reading but the second member allows for a dependent reading. A second approach (Kamp & Reyle(1993), Spector(2003)) is to treat the bare-plural as being obligatorily low-scope and number-neutral, meaning "one or more". This accounts for the scopal behavior of DepPls, but not for the overall plurality condition.

The Proposal This paper offers a novel analysis of the DepPl reading by improving on the treatment of the plurality requirement and by introducing reference to events.

The plurality requirement is a conversational implicature. It is well-known that the plurality requirement on plural morphology is not always in force, above and beyond the phenomenon of DepPl. Sauerland et. al (*in press*) argue for a number-neutral interpretation of plural morphology that derives the plurality condition from lexical blocking of the singular. However, this theory makes the wrong predictions for DepPl cases where singulars are often also appropriate ((6) can be used whenever (7) can). Nonetheless, there are environments in which DepPls get a fully number-neutral interpretation. If exactly one student won an award, (8) is true, (9) is false and (10) can be answered affirmatively.

Notice now that these contexts are exactly the ones where conversational implicatures are suppressed. Thus we propose that the plurality condition is such an implicature. Further evidence comes from the fact that the plurality condition can be canceled if pragmatically plausible (11).

The plurality implicature contains unbound anaphora to events. To explicate the content of this implicature, we utilize unbound anaphora to events, as suggested by Schein(1993) to account for (certain) cumulative readings. Schein proposes that every sentence begins with existential quantification over a second-order variable over events, which all events in the sentence are parts of. Thus, the truth conditions of (12) are as in (13). The use of the plural would add the implicature as in (14), providing the end result that John must own multiple cars. Note that this shows that the account of the plural is the same whether or not the subject is plural itself.

However, this is insufficient. While the plurality is not local to the scope of the plural, it is not global either. To see this, a more complicated sentence such as (15) is necessary. Interpreting the DepPl as being number-neutral and adding a global condition that more than one flower was involved ends up with the reading (16a), which is not a reading of this sentence. Instead, the two readings of this sentence are (16b) and (16c), which correspond to the LFs in (17a) and (17b). The plurality condition seems to apply at the level marked on the trees. To account for this, two modifications must be introduced. First, a second-order event variable must be introduced before every QR'd quantifier (18a, 18b). Second, the implicature must contain universal reference to the event sets in question (19), thereby applying to the lower event set and generating the right truth conditions.

(1) All my friends attend good schools.

(2) a. [∀x.MY FRIEND(x)][∃Y.|Y|⩾2 & GOOD SCHOOL(y)][x attends (Y)]
b. [∃Y.|Y|⩾2 & GOOD SCHOOL(y)][∀x.MY FRIEND(x)][x attends (Y)]

(3) Three women gave birth to five babies.

(4) a. Most students wrote thirty papers. (*Cumulative)
b. Most students wrote papers. (√DepPl)

(5) a. All students wrote thirty papers. (*Cumulative)
b. All students wrote papers. (√DepPl)

(6) Most of my friends own a nice car.

(7) Most of my friends own nice cars.

(8) At most ten students won awards.

(9) All the students didn't win awards.

(10) Did any students win awards?

(11) [*FBI investigator:*]All the suspects live in big cities, perhaps even the same big city.

(12) John owns small cars.

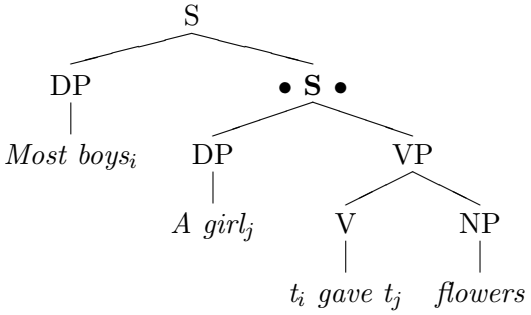
(13) ∃E[John][λx[∃e∈E[AG(e)(x) & OWN A SMALL CAR(e)]]]

(14) The number of cars in total *in that set of events* is greater than one.

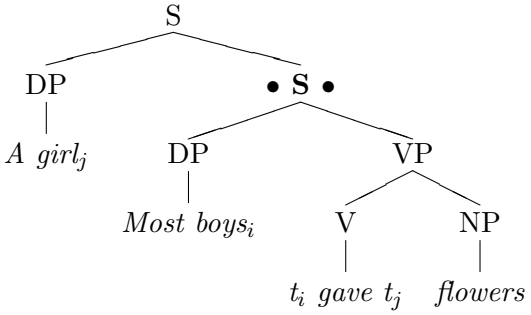
(15) Most boys gave a girl flowers.

(16) a. # Most boys are such that each gave (at least) one girl (at least) one flower
b. Most boys are such that each gave (at least) one girl at least two flowers
c. There's at least one girl such that most boys each gave her (at least) one flower

(17) a.



b.



(18) a. ∃E$_1$[Most boys][λx∃E$_2$⊆E$_1$[a girl][λy[∃e∈E$_2$[AG(e)(x) & TO(e)(y) & GAVE A FLOWER(e)]]]]
b. ∃E$_1$[a girl][λx∃E$_2$⊆E$_1$[Most boys][λy[∃e∈E$_2$[AG(e)(y) & TO(e)(x) & GAVE A FLOWER(e)]]]]

(19) The number of flowers in total *in each of those sets of events* is greater than one.