

Lexical distributivity with group nouns and property indefinites

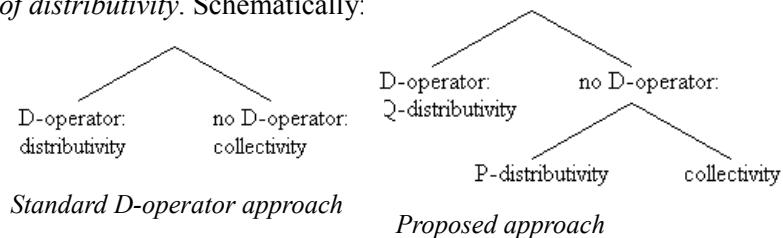
The most common approach to distributive sentences like *The girls laughed* – which is roughly equivalent to *Every girl laughed* – is to analyse them (following Link 1983) as involving covert quantification over the individual members of the plurality *the girls* by means of a distributivity operator. The quantifier-less approach of Scha (1981), which analyses distributivity in terms of the lexical semantics of the predicate, fails to account for more complex cases like *The girls drank a whole bottle of wine*.

Lexical distributivity and covert quantification are not mutually exclusive, but since the latter seems able to account for all the data, there seems to be no need to keep the former mechanism around. However, I argue that the D-operator approach does not account for all the data: certain data involving group nouns (like *the team*) are best analysed by means of a lexical distributivity mechanism. I present evidence that this lexical distributivity is not limited to one-place predicates, but extends to two- and three-place predicates. As a consequence, even the aforementioned *The girls drank a whole bottle of wine*, which is a classic argument in favour of a D-operator analysis, may be analysed in terms of Scha-style lexical distributivity.

P-distributivity and Q-distributivity. Suppose we have a sentence S of the form $X \text{ Pred}$, where X is a plural, conjunction or group noun, and Pred is a predicate. An *interpretation* of S is *distributive* if we infer that $[[\text{Pred}]](x)$ for every individual x in $[[X]]$; otherwise it is *collective*. In the D-operator approach, the different interpretations are each derived by a different semantic mechanism – covert quantification is responsible for the distributive interpretations, direct predication over the plural individual $[[X]]$ is responsible for the collective ones. In my approach, the division of labour is somewhat different: direct predication over $[[X]]$ is responsible for collectivity *and some cases of distributivity*. Schematically:

Here, Q-distributivity is the familiar operator-based distributivity; P-distributivity and collectivity are rooted in the lexical semantics of the predicate and our reasoning about parts and wholes with respect to the predicate meaning. Thus,

The girls laughed is interpreted distributively because laughing is something only individuals are able to do, while *The girls are numerous* is interpreted collectively because being numerous is a property of collections, not of individuals (cf Scha 1984, Dowty 1987). P-distributivity is closely related to Carlson's (1977) treatment of kinds: according to Carlson, quantification over instantiations of higher-order entities is not required in order to be able to say something about such instantiations.



Distributivity with group noun subjects. The reason we need both a lexical and a compositional distributivity mechanism is the distributive behaviour of group nouns. P-distributivity is available with group nouns (e.g. *The class laughed*), but as the following data show, Q-distributivity is not (the available interpretations are given in terms of entailments; 'PPI' stands for 'predication over a plural individual', 'QD' stands for 'Q-distributive'):

- (1) a. The team members are walking or cycling.
 - \Leftarrow The team members are walking or the team members are cycling. (PPI)
 - \Leftarrow Each of the team members is walking or cycling. (QD)
- b. The team is walking or cycling.
 - \Leftarrow The team is walking or the team is cycling. (PPI)
- (2) a. The boys have the largest number of coins / have more coins than the girls.
 - \Leftarrow The boys together have more coins than the girls. (PPI)
 - \Leftarrow Each of the boys has more coins than the girls. (QD)
- b. The boy team has the largest number of coins / has more coins than the girl team.
 - \Leftarrow The boy team together has more coins than the girl team together. (PPI)
- (3) a. The boys would be upset if Mr Smith kissed their mother.
 - \Leftarrow The boys would be upset if Mr Smith kissed the boys' mother (PPI)
 - \Leftarrow Each of the boys would be upset if Mr Smith kissed his mother (QD)
- b. The class would be upset if Mr Smith kissed their mother.
 - \Leftarrow The class would be upset if Mr Smith kissed the class's mother. (PPI)

This contrast between groups and plurals is easily accounted for under the common assumption that group noun denotations, unlike plural denotations, are atomic (Barker 1992, Schwarzschild 1996, parts of Landman

1989): their individual members are not accessible to the compositional semantics and hence cannot be quantified over. So the group noun sentences in (1b-3b), unlike their plural-subject counterparts (1a-3a), do not involve a quantifier that can take scope over the disjunction in (1) or the object quantifier in (2), or allow individual boys to bind the pronoun in (3).

Evidence for $n > 1$ -place P-distributivity. However, there is an apparent exception to this generalisation: sentences with a group-denoting subject whose direct or indirect object is an *a*-indefinite or numerical indefinite, like their plural-subject counterparts, have two interpretations:

- (4) a. The first aid team members are wearing an orange vest / two blue socks.
- b. The first aid team is wearing an orange vest / two blue socks.¹
- c. De leden van het EHBO-team dragen een oranje hesje. (Dutch)
- d. Het EHBO-team draagt een oranje hesje.

All sentences in (4) are entailed by both the collective statement “There is an orange vest such that the team members are wearing it”, and the distributive “Each of the team members is wearing an orange vest”. On the first interpretation, the whole team is squeezed into a single vest; on the second, more salient one, each team member is wearing their own vest. If the indefinite is analysed as a generalised quantifier with existential force, the indefinite takes scope over the entire group and only the first interpretation will be available. So how to account for the contrast between (1-3) and (4) while preserving our account of the contrast between groups and plurals with regard to Q-distributivity? The answer: we analyse the distributivity in (4) as P-distributivity. I propose that the indefinite in (4b,d) denotes a property rather than a quantifier, an idea that has been used to account for a wide range of phenomena (*there*-sentences, McNally 1992; opaque verbs, Zimmermann 1993; light verbs, De Hoop 1996; and PPs, Mador-Haim & Winter 2007). Similarly to the analysis of opaque verbs in Zimmermann (1993), the predicate *is wearing* takes the object property as its direct argument, *enabling P-distributivity not only over the members of the subject group but also over the instantiations of the object property*. The result of this 2-place P-distributivity is that (4) is interpreted as a relation between instantiations of two higher-order entities: individual team members and individual shirts. (Note that the same happens with kinds and indefinite objects in e.g. *The lion has a mane*.)

There are two alternative explanations for the group distributivity data that do not require that the indefinite denote a property, but neither accounts for (all) the data. The first is group credit, which is a special case of the collective interpretation: *The team is holding up a trophy* can be true when only a single representative team member is actually holding the trophy, so according to the same reasoning, *The team is wearing an orange shirt* might be true even when the shirt-wearing is individual, because of a kind of metonymical extension of its collective interpretation. However, the group credit interpretation of *The team is holding up a trophy* persists under an existential paraphrase (*There is a trophy that the team is holding*), but the distributive interpretation of *The team is wearing an orange shirt* does not, indicating that the latter cannot be a special case of the former. The second alternative explanation is quantification over kinds: *There is a shirt that the team is wearing* is compatible with every individual team member wearing their own shirt, if we interpret *a shirt* as *a kind of shirt*. However, *Some*-indefinites can quantify over kinds as easily as *a*-indefinites can, but *The team is wearing some blue shirt* is not truth-conditionally equivalent to *The team is wearing a blue shirt*. The first requires that every member is wearing the same kind of shirt; the second can also be true if the team members are wearing different kinds of shirts.

Conclusions. I have shown evidence that there are two distributivity mechanisms, one lexical and one quantificational, and that the former (P-distributivity) is available with group nouns but the latter (Q-distributivity) isn't. I have also argued that P-distributivity extends beyond one-place predicates, and that this (together with the common assumption that indefinites may denote properties) explains an otherwise unexpected case of distributivity with group noun subjects.

References. Barker, C. (1992). ‘Group Terms in English: Representing Groups as Atoms’. *Journal of Semantics* 9(1), pp. 69–93 | Carlson, G. (1977). *Reference to Kinds in English*, PhD thesis, UMass. | Dowty, D. (1987). ‘A Note On Collective Predicates, Distributive Predicates, and All’. *Proceedings of the Third Eastern States Conference on Linguistics*. | De Hoop, H. (1996). *Case Configuration and Noun Phrase Interpretation*, Garland, New York. | Landman, F. (1989). ‘Groups’. *Linguistics and Philosophy* 12, pp. 559–605 & 723–744. | Mador-Haim, S. & Y. Winter (2007). ‘Non-Existential Indefinites and Semantic Incorporation of PP Complements’. *Proceedings of SALT17*. | McNally, L. (1992). *An Interpretation for the English Existential Construction*, PhD thesis, UCSC. | Scha, R. (1981). ‘Distributive, collective, and cumulative quantification’. In Janssen, T. & M. Stokhof (eds), *Formal methods in the study of language*. Schwarzschild, R. (1996). *Pluralities*. Kluwer, Dordrecht. | Zimmermann, T. E. (1993). ‘On the Proper Treatment of Opacity in Certain Verbs’. *Natural Language Semantics* 1, 149–179.

¹ Many varieties of English require a dependent plural here ('orange vests'), but for the speakers that accept (4a), (4b) is equally good. The Dutch examples are unproblematic.