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1 Introduction

Sentences such as (1) can have at least two different interpretations: a collective reading illustrated in (a) and a distributive reading illustrated in (b).

(1) The girls built a sand castle.

a. The girls built a single sand castle together. Collective reading

b. One girl built a sand castle and the other girl built a different sand castle. Distributive reading

Under its collective interpretation, (1) is true as long as the predicate is true of the plural subject as a whole, without necessarily being true of each individual member. The distributive reading of (1), instead, is diagnosed by the existence of a *distributive entailment* such that whenever the predicated is applied to the plural subject, it is inferred to be individually true of each individual member of that subject.

Predicates that can have both collective and distributive readings have been traditionally called 'mixed' predicates (Champollion, to appear). Distributive readings for these mixed predicates are thought to arise from the presence of a (optional) covert distributivity operator D, whose meaning roughly corresponds to that of adverbial *each* in English (Link 1991, Champollion).

(2) $[\![D]\!] = \lambda P.\ \lambda x\ \forall y[\ y \preceq_{AT} x \rightarrow P(y)]$
In words: The D operator takes a predicate P and returns a new predicate that is true of a plurality exactly if P is true of all the atomic individuals that make up the plurality.

When the D operator is applied to a 'mixed' predicate, the distributive entailment is guaranteed (there is "covariation" of events). Moreover, the universal quantification introduced by D will interact with any variables or operator contained in the predicate. In (3), the predicate is the verb phrase *built a sandcastle*. Since the indefinite object (*a sandcastle*) is in the scope of the distributivity operator, the sandcastle is allowed to covary with each member of the subject (i.e. with each girl). As a result, the D operator accounts for the covariation effects attested in transitive predicates.

(3) The girls D built a sand castle.
$D(\lambda x.\exists y.sandcastle'(y) \wedge built'(x,y))(\iota x.girls'(x))$
$\forall z.(z \preceq_{AT} \iota x.girls'(x)) \rightarrow \exists y.sandcastle'(y) \wedge built'(z,y)$

The non-distributive or collective reading, instead, is just the result of applying the plural subject to the mixed predicate, without the mediation of the distributivity operator. In this sense, non-distributive interpretations are obtained by default.

(4) The girls built a sand castle.
$\lambda x.\exists y.sandcastle'(y) \wedge built'(x,y)(\iota x.girls'(x))$
$\exists y.sandcastle'(y) \wedge built'(\iota x.girls'(x), y)$

Question of priming.
This question has been addressed by X for the cumulative vs. distirbutive ambiguity.
Previous studies.
Covariation issue.
Our study. Priming cumulative vs. distributive.

1.1 Distributivity without covariation

1.2 Goals