

On quantificational force in conjoined and non-conjoined summative predicates, and its consequences for underspecification theories of homogeneity

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Introduction. Some work on homogeneity suggests that the paradigm involves underspecification between existential and universal quantificational force, with some mechanism determining which is actually intuited in a given sentence. This abstract suggests that such an approach cannot capture all of the data touching on (at least) subatomic homogeneity. In particular, conjoined summative predicates are predicted by these theories to behave in the same way as non-conjoined co-predicated summative predicates. This is not the case: the former are weak and consistent, while the latter are strong and inconsistent.

Background: underspecification theories of homogeneity. Pluralities are generally interpreted universally in positive sentences, and existentially in negative ones; this is a ‘homogeneity’ effect.

- (1) a. Adam saw the kids.
 \approx he saw **all** of the kids
 $\not\approx$ he saw at least some of the kids
- b. Adam didn’t see the kids.
 $\not\approx$ he didn’t see all of the kids
 \approx he saw **none** of the kids

Why is this? One theory builds on the simple intuition that each sentence in (1) has the quantificational force that provides the strongest meaning. Indeed, Krifka (1996), Laserson (1999), Winter (2001), and Malamud (2012) propose that the grammar does not fix whether a predicate is interpreted universally or existentially when it takes a plurality as an argument. Rather, the Strongest Meaning Hypothesis (SMH) of Dalrymple et al. (1994) ensures that speakers prefer whichever interpretation results in the strongest meaning.

Križ & Spector (2021) also provide an underspecification theory, but not based in the SMH. They point out that the SMH cannot capture the meaning of pluralities in non-monotonic contexts:

- (2) Exactly one student read the books. (Križ & Spector 2021:1135)

Instead, Križ & Spector (2021) suggest that the possible meanings of plurals arise from the *conjunction* of candidate interpretations (CIs). The meaning of (2) is predicted if the two CIs in (3) are conjoined: exactly one student read all of the books, and the other students read none of them.

- (3) a. Exactly one student read some of the books.
 b. Exactly one student read all of the books.

Call this the ‘co-assertion’ account of homogeneity.

In addition to plural homogeneity, the homogeneity paradigm also exists within atoms (e.g., Löbner 2000, Spector 2013, Križ 2015, 2019):

- (4) a. The flag is green.
 \approx **all** of the flag is green
 $\not\approx$ at least some of the flag is green
- b. The flag isn’t green.
 $\not\approx$ not all of the flag is green
 \approx **none** of the flag is green

At first glance, there is no reason not to carry over underspecification theories of homogeneity to the subatomic case. On this view, *green* is lexically ambiguous (5) (at first approximation):

- (5) $\llbracket \text{green} \rrbracket =$
- a. $\lambda x. \exists y [y \sqsubseteq x \wedge \text{green}(y)].$
 b. $\lambda x. \forall y [y \sqsubseteq x \rightarrow \text{green}(y)].$

The positive (4a) is intuited as universal due to co-asserting that the flag has a green part and that all parts of the flag are green, while the negative (4b) is intuited as a negated existential due to co-asserting that the flag is not entirely green and is not green at all.

Let’s focus on (9b), which is inconsistent. There is no world in which a flag is both entirely white and entirely green. Thus, on Križ & Spector’s (2021) theory, the inconsistency of (9b) cannot result directly from a SRCI, since there is no SRCI that has an inconsistent meaning (SRCIs must correspond to a cell in a partition of worlds). On the other hand, it would be possible to obtain (9b) by having internally consistent SRCIs which, when conjoined, result in inconsistency. We would need candidates of the following nature, where a and b are subatomic pieces of the flag and ‘white’ and ‘green’ are universal (as emphasized through a subscript \forall):

$$(10) \quad \text{SRCIs for (9b)} = \left\{ \begin{array}{c} \dots \\ (a \text{ is white}_{\forall} \vee a \oplus b \text{ is white}_{\forall}) \wedge (b \text{ is green}_{\forall} \vee a \oplus b \text{ is green}_{\forall}), \\ (b \text{ is white}_{\forall} \vee a \oplus b \text{ is white}_{\forall}) \wedge (a \text{ is green}_{\forall} \vee a \oplus b \text{ is green}_{\forall}), \\ \dots \end{array} \right\}$$

Since it is impossible for $a \oplus b$ to be both white_{\forall} and green_{\forall} , (10) is equivalent to:

$$(11) \quad \text{SRCIs for (9b)} = \left\{ \begin{array}{c} \dots \\ a \text{ is white}_{\forall} \wedge b \text{ is green}_{\forall}, \\ b \text{ is white}_{\forall} \wedge a \text{ is green}_{\forall}, \\ \dots \end{array} \right\}$$

Co-asserting these SRCIs results in inconsistency, obtaining (9b). Crucially, for this to occur, the mechanism whereby SRCIs are co-asserted must be blind to the creation of inconsistency. There is no equivalent of Bar-Lev & Fox’s (2017) ‘Innocent Inclusion’ in co-assertion.

This is how the co-assertion theory might obtain (9b). The problem is that this wrongly predicts (9a) to be inconsistent, too—specifically, because the conjunction *and* in (9a) is intersective. A non-intersective *and* would involve existential quantification breaking up the flag into pieces, of which *white* and *green* would be predicated universally (Krifka 1990). If so, (9a) would be predicted to behave differently from (9b). But such a non-intersective *and* is not available in this particular example (presumably due to the atomicity of the subject; Winter 2001); if it was, it would be possible to modify each colour term with *completely*, contrary to fact:

(12) #The flag is completely white and completely green.

Given that *and* in (9a) is intersective, the SRCIs for (9a) look exactly as in (11), and inconsistency is predicted just as for (9b). For (9a) to be consistent, the co-assertion mechanism must be ‘intelligent’ enough to not knowingly create a contradiction. But this brings back the puzzle of (9b).

Conclusion. The quantificational force of summative predicates is not aligned with the predictions of underspecification theories of homogeneity, at least in the domain of subatomic homogeneity. The SMH predicts all co-predicated summative predicates to be weak, contrary to fact; the co-assertion approach predicts all co-predicated predicates to pattern together (as consistent or inconsistent, depending on assumptions about co-assertion), rather than making the cut between conjoined and non-conjoined co-predicated predicates.

The upshot is that homogeneity must be computed *locally* in cases like (9b). (9a) might be understood in terms of the conjunction creating a syntax where both summative predicts can fall in the same locality horizon. See (citation removed) for work along these lines.

Finally, this abstract has focused only on summative predication, leaving for future research whether similar points hold for plural homogeneity. The data would look like (13).

- (13) a. The kids are singing and talking.
b. #The talking kids are singing.

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