Every provides an implicit comparison class when *each* does not

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Although the English universal quantifiers *each* and *every* are highly similar, it's often noted that *each* is 'more individualistic' in some way (e.g., [8; 4; 1; 7; 6]). In a recent proposal, [3] explains this difference in terms of distinct lexical meanings. The meaning of *every frog* is argued to have a constituent that corresponds to the plurality "the frogs" whereas the meaning of *each frog* is argued to be more like a conjunction of claims about individuals (e.g., "$frog_1$ is green & $frog_2$ is green & ..."). The bulk of the evidence for this view comes from sentence verification tasks (e.g., participants recall individual frog colors after evaluating sentences like *each frog is green*, but recall group properties, like average frog color, after evaluating sentences like *every frog is green*). To broaden the empirical landscape, we test a novel prediction of [3]: since the mental representation of *every* calls for grouping the things quantified over, that group should be available to serve as an antecedent for predicates that require comparison classes, like *be the same color*. We show that this prediction is borne out in a simple forced-choice judgment study.

Predicates involving *same* and *different* require a plural comparison class (i.e., same as what?) [5]. So while a sentence like *the frogs are the same color* is perfectly sensible, since the comparison class is clear (the other frogs), a sentence like *Kermit is the same color* is infelicitous, at least absent more contextual support (e.g., *look at those green frogs; Kermit is the same color*). On the current proposal, *every frog* is like *the frogs*, whereas *each frog* is more like *Kermit*. Indeed, past work has found some differences between quantifiers when it comes to licensing predicates with *same* [2], though only in the presence of strong contextual support. On the hypothesis pursued here, the meaning of *each frog*, on its own, does not introduce a comparison class, in contrast to *every frog*. Of course, context may offer various options for constructing such a comparison class. But our key prediction is that while the availability of such comparison classes will be pragmatically modulated in the case of *each*, the group representation of the domain inherently provided by *every*'s meaning will facilitate access to a comparison class regardless of context.

To test this prediction, we recruited 120 English-speaking adults online to participate in an experiment built with PCIbex [9]. The experiment consisted of 12 items like the example in (1) below.[1] Each item involved a short context sentence followed by a quantificational phrase paired with a predicate involving *same*. For half of the participants, the comparison class was made linguistically explicit by the inclusion of an *as*-phrase with a plural NP (underlined for illustration in (1)). For the other half of the participants, this comparison class was left implicit.

(1)   Ann and Frank decided to throw a school Halloween party.
      Surprisingly, {each/every} student showed up in the same costume (<u>as their classmates</u>).

Participants were given a drop-down menu and asked to choose between *each* or *every* based on what made the sentence sound more natural. As seen in Figure 1, *every* was preferred in the absence of the comparison class being made explicit ($t_{707} = 5.58, p < .001$), but this preference disappeared when the *as*-phrase was present (main effect of *as*-phrase on rate of picking *every*: $\beta = -.15$ [95% CI: $-.19$ to $-.12$], $t = -4.61, p < .001$).

These results provide another perspective on *each* having a 'more individualistic' meaning than *every*. Namely, *every NP* makes "the NPs" more readily available as a comparison class than *each NP*. This finding bears out a novel prediction of the proposed meanings discussed above and suggests that *each* differs from *every* in that only the latter provides direct reference to the domain as a group. This group is then then available to serve as a comparison class (e.g., for predicates involving *same*). These results thus bolster the case for locating the difference between *each* and *every* in their lexical meanings, along the lines of [3].

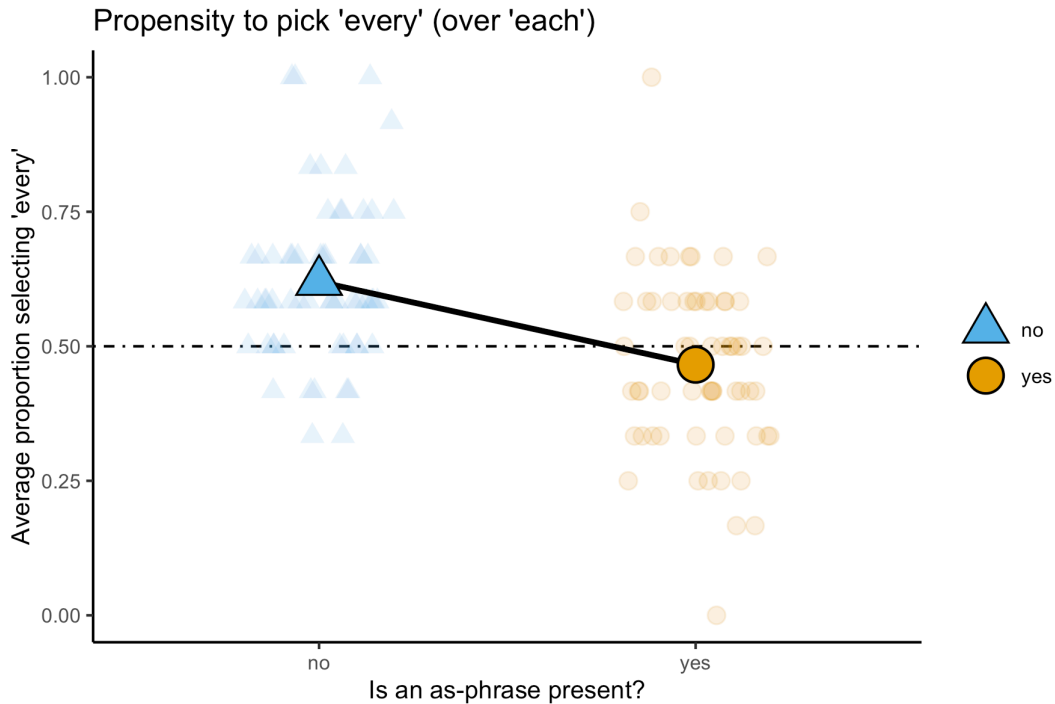[1]See a demonstration of the task here: https://farm.pcibex.net/r/OpKhEc/.

Figure 1: Participants' propensity to select *every* over *each* given the presence or absence of an explicit comparison class (e.g., *as their classmates*). Translucent points represent individual performance.

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