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\textsubscript{1} is green & frog\textsubscript{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 (as their classmates).

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: \(\beta = -.15 \ [95\% \text{ CI: } -.19 \text{ to } -.12], t = -4.61, p < .001\).

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 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/ri/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.

References