How many Selves are Bound? Distributivity and Number Effects in Bound Reflexives

The form of a pronoun, encoding number, person, and gender features, constrains its potential reference (i.a., [1]). However, *they* can reference a singular antecedent despite its seemingly plural number feature [2-4]. Some previous work in fact posits that *they* is underspecified for number and gender [5-7]. The current study focuses on this potential number underspecification, an area where previous work has found mixed results. [8,9] found a processing cost for *they* when referring to a singular antecedent, and [10] found that *themselves* preferentially links to a plural antecedent over a competing singular one. At the same time, [11] found no evidence that *they* is initially specified to form a dependency with a plural antecedent. [12] similarly saw no plural preference for *themselves*, though they did find an early effect of number for *themself*, suggesting that the *-self* morpheme potentially prefers singular antecedents. Not only is *they*'s number (under)specification still an open question, existing studies have also mostly been limited to referential contexts. The only exception is [13], which tested bound variable singular *they* with morphologically singular quantified antecedents (*every* and *each*) vs. plural quantified antecedents (*all*) vs. definite plurals (e.g., *the runners*) – see (1). They found no effect of number but instead an effect of semantic distributivity in acceptability, with bound singular *they* being more acceptable with more distributive antecedents (*def*<*all*<*every*<*each*). In this paper, we further probe the number underspecification theory by testing whether bound *themself/themselves* is sensitive to morphological number and/or the semantic distributivity of the binding quantifier phrase.

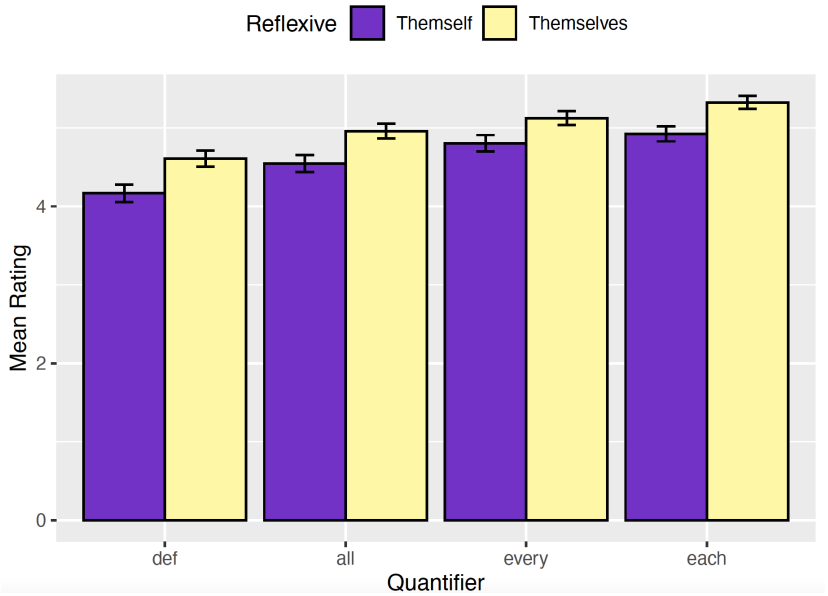
Exp 1: Themselves. Participants (n=40) provided acceptability ratings on a 7-point Likert scale ("Completely unnatural" to "Completely natural"). We tested sentences (n=24) with bound *themselves* in the context of non-gendered antecedent quantifier phrases headed by *all*, *every*, and *each,* and a baseline definite plural condition – see (2). The critical items are based on [13]'s stimuli, with some changes to address potential stimuli pitfalls. First, using reflexives rules out an unheralded referent, where *they* refers to someone outside the linguistic context – an effect which possibly inflated ratings in [13]. We further modified the stimuli to rule out the group-plurality interpretation of *the only one*, by changing it to *the only person*. Conducting the same analysis as [13], we found the rating of *def* to be significantly lower than the rating of *all* ($p<0.001$), the rating of *all* not to be significantly different than rating of *every* ($p=0.12$), and the rating of *every* significantly lower than the rating of *each* ($p<0.05$) – see Fig. 1.

Exp 2: Themself. Participants (n=40) were presented with the same stimuli and task as Exp.1, changing the reflexive *themselves* to *themself*, to check if the singular morphology of *-self* impacts ratings – see (3). We found an overall degradation in the rating of *themself* in all four conditions compared to Exp. 1 ($p < 0.001$) – see Fig 1. In Exp. 2, the rating of *def* was lower than the rating of *all* ($p<0.001$) and the rating of *all* lower than the rating of *every* ($p<0.01$), but the rating of *every* did not differ from the rating of *each* ($p=0.38$).

Implications. The overall numerical pattern of our results follows [13], with the same cline in acceptability (*def*<*all*<*every*<*each*) for both reflexives. But in Exp. 1, the more collective quantifiers (*all*, *every*) pattern together, different from the most distributive one (*each*). This pattern (*def*<*all*=*every*<*each*) suggests that *themselves* is more sensitive to semantic distributivity, irrespective of morphological number. In Exp. 2, the plural number quantifier (*all*) patterns differently from the two singular number ones (*every*, *each*). This (*def*< *all*<*every*=*each*) suggests that *themself* is more sensitive to number, irrespective of distributivity. Our findings are therefore compatible with [12], who argue that *themselves* is underspecified for number, but *themself*'s singular morphology impacts antecedent reference. The relative acceptability of *def* plural supports a distributive interpretation via a silent distributive operator [12,14,15]. The present study contributes to the rapidly growing body of research about singular *they*, a pronoun currently undergoing change, which serves as a window into the complex interaction of structural, contextual, and social factors during language comprehension.

References
[1] Arnold et al. (2000) [2] Camilliere et al. (2019) [3] Conrod (2019) [4] Konnelly and Cowper (2020) [5] Wiltschko (2008) [6] Bjorkman (2017) [7] Conrod, Ahn & Schultz (2022) [8] Sanford & Fillik (2007) [9] Chen et al. (2021) [10] Van Handel et al. (2021) [11] Moxey et al. (2004) [12] Davenport & Yoshida (2023) [13] Moulton et al. (2022) [14] Roberts (1987) [15] Rullmann (2003)

Figure 1: Mean Acceptability Judgments



Sample Stimuli:

(1) A big group of cyclists decided to go for a ride despite the poor weather.
a. **{**The cyclists/All the cyclists/Every cyclist/Each cyclist**}** thought that *they* were the only one who liked the pouring rain.

(2) A big group of cyclists decided to go for a ride despite the poor weather.
a. **{**The cyclists/All the cyclists/Every cyclist/Each cyclist**}** thought *themselves* to be the only person who liked the pouring rain.

(3) A big group of cyclists decided to go for a ride despite the poor weather.
a. **{**The cyclists/All the cyclists/Every cyclist/Each cyclist**}** thought *themself* to be the only person who liked the pouring rain.