

## On the acquisition of dual in Slovenian

By some accounts, the exact cardinal meanings represented by numerals like *one* and *two* come from their exact lexical meanings. Others argue that number words are not lexically exact, but rather only provide a lower bound, so that the semantics of the numeral *two* is really “at least 2” rather than “exactly 2” (cf. Barner & Bachrach 2010). Under this view exact interpretation is achieved via pragmatic exhaustification (scalar implicature). While remaining neutral about what the lexical representations of numerals is in adult speakers, we investigate how children acquire exact meanings for early number words, and whether these might be learned via a process that involves implicature.

One piece of evidence in favor of the hypothesis that number words aren't constructed via implicature is that whereas children treat numbers as exact from the age of 2, they don't compute implicatures for other quantificational expressions at that age, suggesting that implicature is not available as a possible mechanism (Hurewitz et al 2006, Papafragou & Musolino 2003, Barner et al. 2009). For example, as shown by Barner et al. (2009), English-speaking children do not compute implicatures when interpreting singular NPs, like in (1). By most accounts, adults exhaustify singular NPs via scalar implicature in order to derive the “only one” reading in (2).

(1) *There is a cookie on the plate.*

(2) ‘There is a cookie, but not more than one, on the plate.’

But according to Barner and Bachrach (2010), this difference between children's quantifiers and number words does not rule out a role for implicature in deriving exact meanings as children may selectively compute implicatures for numbers because they can readily identify relevant scalar alternatives (i.e., larger numbers), whereas for other scales (*al/some*) they struggle to identify which alternatives are relevant (Skordos & Papafragou 2016). To explore this option we compared number words to grammatical number in a language with three grammatical numbers, expecting that the presence of the third grammatical number would ease the access to relevant alternatives. Specifically, we tested how young children interpret singular, plural, and dual morphology in Central Slovenian (Dvořák & Sauerland 2006, Toporišič 2000) and whether the presence of the dual allows children to derive exact interpretations via implicature early in acquisition. In Experiment 1, we asked 4- and 5-year-old Slovenian speakers to judge whether singular, dual, and plural expressions were true of sets with 1, 2, or 4 objects (Fig.1). Another group of 4- and 5-year-olds was shown the same pictures, but asked to judge the Slovenian words for “one”, “two”, and “four” as valid descriptions. Experiment 2 used the same procedures with Slovenian 2-year-olds.

In Exp.1, we found (Fig.1a) that older children computed implicatures robustly, resulting in “exact” interpretations of both singular and dual forms, and a clear “at least 3” reading of the plural, such that there was no significant difference between number words (*one/two*) and morphology (Sg/Du). This contrasts starkly with past reports of English-speaking children on similar tests of singular/plural interpretation. In Exp.2, we found (Fig.1b) that even some 2-year-olds computed implicatures for Sg/Du/Pl expressions. Together, these results suggest that children as young as 2 can compute scalar implicatures to derive exact interpretations of quantificational forms like the singular and dual, lending credence to the hypothesis that implicature might support the acquisition of exact number word meanings.

### References

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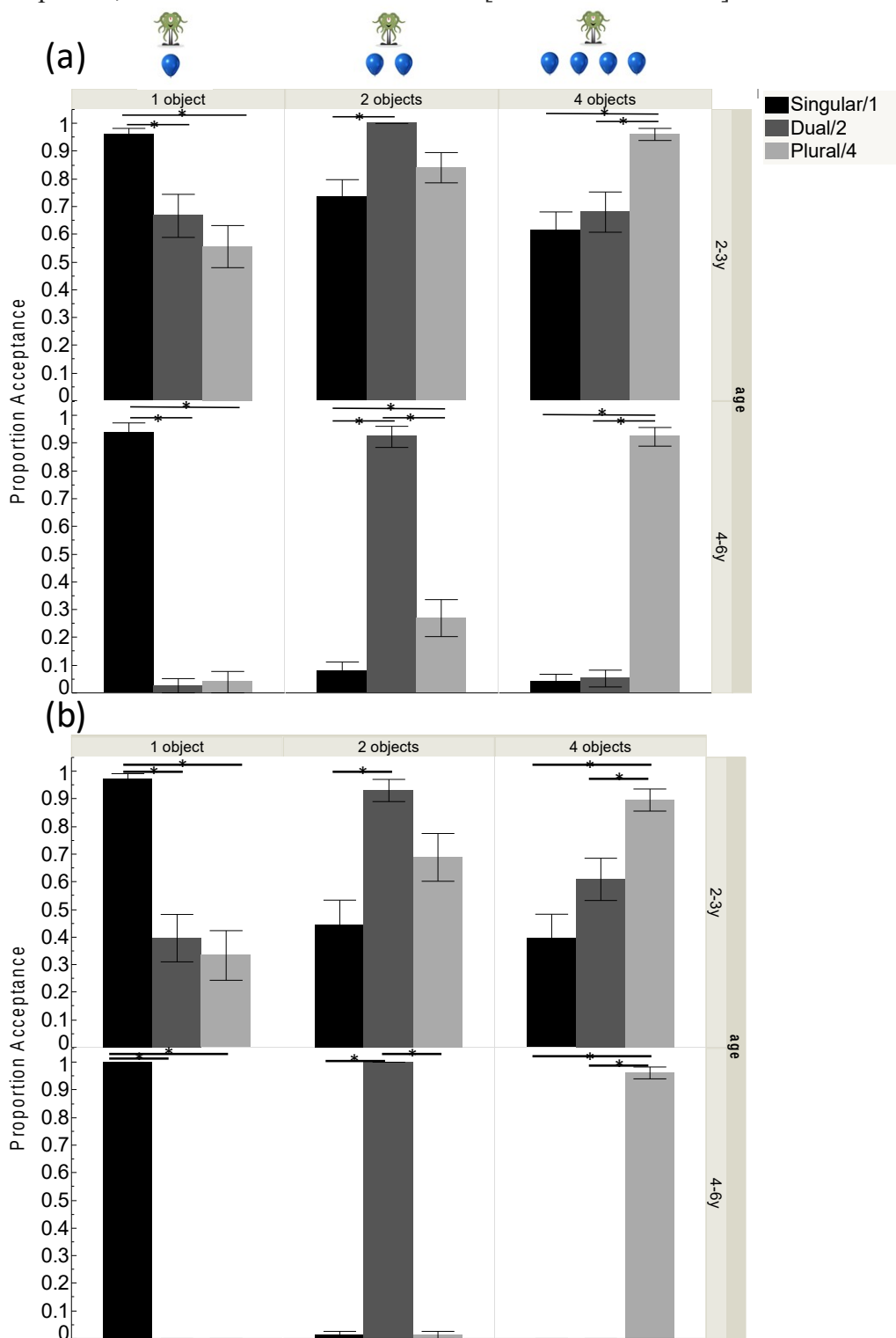


Figure 1. The proportion of acceptance for the morphology condition (a) and number condition (b) for 1-object, 2-object, and 4-object trials, when paired with singular/"one" (black), dual/"two" (dark gray) and plural/"four" (light gray). Performance is separated by younger children (a) and older children (b). Stars indicate significant pairwise differences as calculated using Tukey's HSD. Omnibus tests were conducted but are not reported here for simplicity of presentation.