

Meaning in Context: Adults' Understanding of English Bare Plurals

English bare plurals are typically interpreted as conveying a “more than one” meaning, even though their semantic meaning is simply “one or more” (since the “more than one” meaning disappears under negation; Tieu et al., 2020). This “more than one” or “multiplicity” inference has been widely argued to arise from scalar implicature (Sauerland et al., 2005; Spector, 2007). However, implicatures arise only when the inferred meaning is relevant to the Question Under Discussion (QUD; Roberts, 1996; Beaver & Clark, 2008; Skordos & Papafragou, 2016, a.o.). Multiplicity inferences may be similarly sensitive to contextual relevance, but prior studies on plurals (e.g., Tieu et al., 2020) did not manipulate the QUD. Thus, one possibility is that adults compute multiplicity from plurals because a quantity-related QUD is implicitly raised (Grimm, 2013); another is that multiplicity arises even when quantity is irrelevant. Here, we examine the role of QUD in adults' multiplicity inferences from plurals.

Experiment 1 tested how English speakers ($n = 20$) interpreted bare plural noun phrases in single vs. multiple-object scenes. Each critical trial showed a basket containing one object (e.g., one pear, see Fig.1a). An animal character, Mr. Cat, prompted another character, Miss Bunny, to describe what she saw in the basket. Miss Bunny always produced a bare plural description (e.g., “This basket has pears”). Participants evaluated Miss Bunny's utterance using one of 3 rewards (“small”, “medium”, or “large” strawberry; cf. Katsos & Bishop, 2011). There were also control trials where plurals were correctly used for 3-object scenes (Fig.1b), as well as fillers with proper names (half true, half false). We analyzed adults' judgments of plural descriptions in both critical and control trials using cumulative link mixed models over ordinal responses (“small,” “medium,” or “large”). The model showed no significant difference in rewards between control and critical trials ($\beta = -0.62, p = .08$; see Fig.2). These results suggest that, when the context does not raise a quantity-related QUD, adults are equally likely to accept “one or more” and “more than one” interpretations of plurals.

Experiment 2 manipulated whether a quantity-related QUD was raised by adding three comparison baskets. On critical trials, Mr. Cat looked at a circled basket containing a single object (same as in critical trials of Exp.1) and said, “This basket is different”. Miss Bunny responded, e.g., “This basket has pears” (Fig.3). Participants ($n = 40$) were randomly assigned to one of two conditions. In the Quantity Condition, the target basket differed from the comparison baskets only in terms of the quantity but not the type of object it contained (e.g., one pear in the target vs. three pears in other baskets; Fig.3a), making quantity relevant. In the Type Condition, the target differed in terms of the type of object it contained (as well as the quantity; Fig.3b), reducing the relevance of quantity. Control trials mirrored the critical trials but used multiple objects in the target (e.g., three pears; Fig.3c). Unlike Exp.1, we found a significant difference in rewards between control and critical trials: adults gave reduced-size rewards for critical trials for both conditions, reflecting a preference for a “more than one” reading of the plural (Quantity: $\beta = -8.673, p < .0001$; Type: $\beta = -8.907, p < .0001$; Fig.2). Moreover, for critical trials, adults gave overall reduced-size rewards in the Quantity compared to the Type Condition ($\beta = -1.53, p = .01$), confirming the prediction that bare plurals are less acceptable for single referents when the context highlights that quantity is particularly relevant. For control trials, no difference was found between the two conditions ($\beta = -2.66, p = .0494$): adults systematically gave the large reward for control trials (Quantity: 85%; Type: 98.75%), suggesting that the contextual manipulation selectively affected the critical trials, i.e., single-object scenes.

Our results show that adults compute multiplicity inferences from plurals more readily when the context raises a quantity-related QUD. When quantity is not clearly relevant (Exp.1), multiplicity inferences are limited; when quantity-based alternatives are highlighted (Exp.2, Quantity condition), such inferences become stronger. This conclusion aligns with the idea that scalar implicatures depend on both informativeness and relevance (QUD; see above). These patterns suggest that multiplicity inferences are context-dependent pragmatic enrichments that arise out of lower-bound (“one of more”) plural semantics.

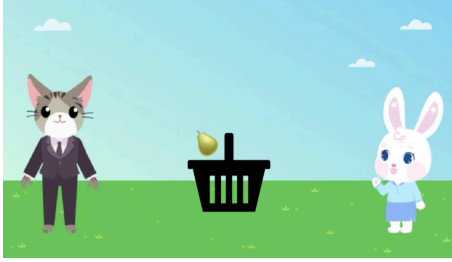


Fig.1a. A critical trial (*single object*) in Exp.1. Miss Bunny says: “This basket has pears”.

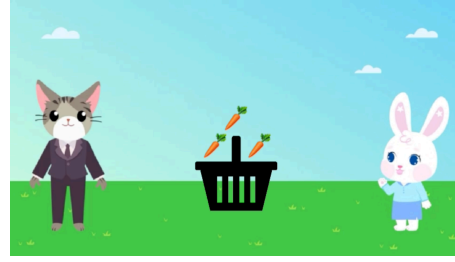


Fig.1b. A control trial (*multiple objects*) in Exp.1. Miss Bunny says: “This basket has carrots”

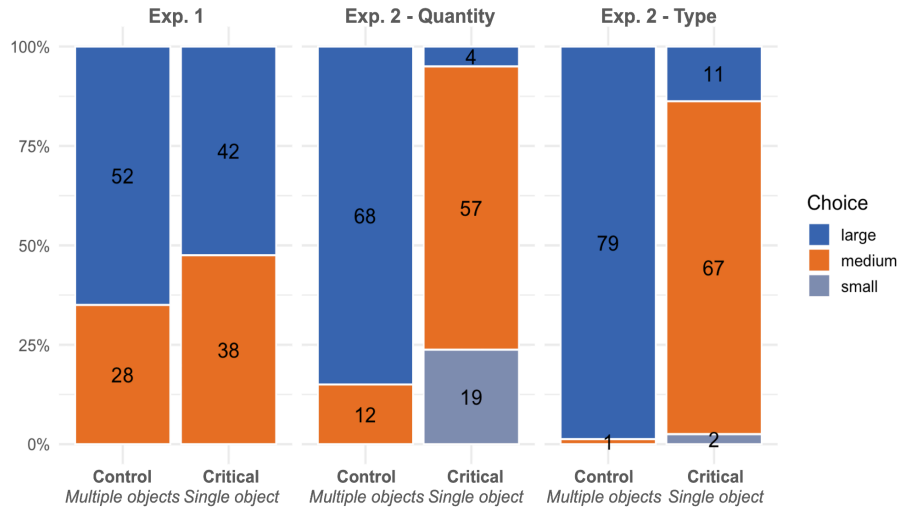


Fig.2. Distribution of reward object choices for control and critical trials in Exp.1 and Exp.2 (Quantity or Type).

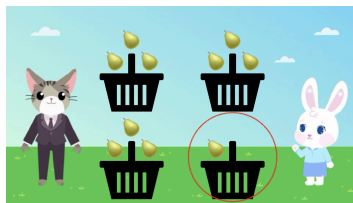


Fig.3a. A critical trial in Exp.2 (Quantity Condition). Miss Bunny says: “This basket has pears”.

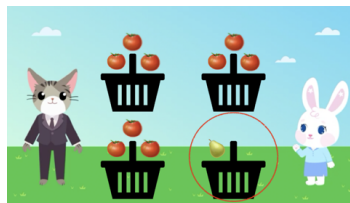


Fig.3b. A critical trial in Exp.2 (Type Condition). Miss Bunny says: “This basket has pears”.

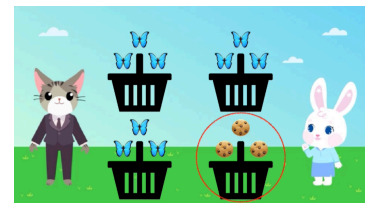


Fig.3c. A control trial in Exp.2 (both conditions). Miss Bunny says: “This basket has cookies”.

References

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