

Context effects in the interpretation of *more furniture*

Introduction Nouns like *furniture* figure prominently in debates about the relationship between nominal form and meaning. They pattern like mass nouns, but can be interpreted like count nouns. To investigate the semantics of *furniture*, we test people’s intuitions about what *more furniture* means in 5 studies that make relevant dimensions salient, and manipulate context. We find *more furniture* pairs with number when context is function-biasing, and with size when size-biasing. These results tell against **GL**, but both **R17** and **BS05/BB09**’s accounts can explain the results.

Background A number of experimental studies have explored the meaning of nouns like *furniture* based on how they are interpreted in the frame *more N*, given the assumption that the meaning of *more N* depends on fine-grained features of *N*’s denotation (**BS05, GL**; cf. **W19**). **BS05** found uniform number-interpretation for *more furniture* with children and adults, and so **BS05** and **BB09** propose that *furniture* denotes a set of individuals (like *tables*), suggesting that its number evaluation is context-independent. **GL** find that *more furniture* can be evaluated on functionality in a function-biasing context, and so posit that *furniture* is ambiguous: it can denote a set of individuals, or a set of “furnishing” events when a function reading is made contextually available. **R17**’s theory holds that *furniture* has a mass denotation (like *water*), so its dimension of evaluation in comparatives is contextually determined; **R17** predicts size evaluation in a size-biasing context.

Materials To make comparison easy for participants, we used visually-presented, ecologically-valid, 3D modeled pictures of two sets of furniture. Each pair of sets varied in the number of pieces, number of types (operationalizing **GL**), and size (conflating individual and total size) of the furniture. In function-biasing studies, the furniture was arranged individually in a room as if in use. In size-biasing studies, the furniture was stacked up in a truck (see Fig. 1).

Methodology Participants were presented with 27 images as described along with a sentence from (1)-(2). Their task was to say whether the sentence accurately describes the image. Each response was coded as number/type/size-consistent and a Bayes Factor analysis was conducted that binned each participant according to the dimension that was 3x more likely for them (**H09**).

- (1) Room/Truck A has more furniture than Room/Truck B does.
- (2) a. Room A has more pieces of furniture than Room B does.
b. Room A is better furnished than Room B is.
c. Truck A has more pieces of furniture than Truck B does.

Main Experiments In **E1** (n=24), the furniture sets were presented in the function-biasing context, and participants evaluated fit with the *Room* variant of (1). In **E2** (n=24), the furniture was presented in the size-biasing context with the *Truck* variant of (1). We found that participants uniformly evaluated based on number in the function-biasing context (95.8%). In the size-biasing context, participants showed size (45.8%), as well as number evaluation (33.3%) (see Fig. 2).

Control Experiments One worry is that our design may have conflated number and function evaluation patterns with number evaluation. So, in **E3** (n=23), we asked participants to evaluate the images from **E1** alongside (2a) (**number** control). In **E4** (n=24), we asked participants to evaluate the images from **E1** alongside (2b) (**function** control). We found that function evaluation did not pattern with number evaluation, suggesting that participants in **E1** were indeed evaluating on number alone (see Fig. 3). Another worry is that the size-biasing context could have made individuation so difficult that participants simply could not evaluate number, even if they understood the sentence to call for it. In **E5** (n=22), we ask participants to evaluate the same images from

E2 alongside (2c). We found that 81.1% of participants evaluated on number, demonstrating that number was available in the size-biasing stimuli (see Fig. 3).

Conclusion and Directions We found that *more furniture* was not evaluated on function in the function-biasing context (further analyses not reported here confirm this), contra **GL**. The size-biasing context did bolster size evaluation. However, both **R17** and **BS05/BB09**'s accounts can in fact explain these findings. For **R17**, *furniture* has a mass denotation, so its dimension is left to context. For **BS05/BB09**, *furniture* effectively has a count denotation, and so should default to number evaluation. However, **B/BS** can say that size-biasing contexts trigger a grinding operation, generating a mass denotation and supporting size evaluation. In the paper, we bolster the above conclusions with data from 3 further experiments, and carefully consider how the differences in **R17**'s/**B/BS**'s representational theories might be teased apart. Such an experiment would, on our view, compare e.g. *more furniture* and *more tables* in extensionally-equivalent circumstances.

Figure 1: Sample stimuli for function-biasing context (L) and size-biasing context (R).

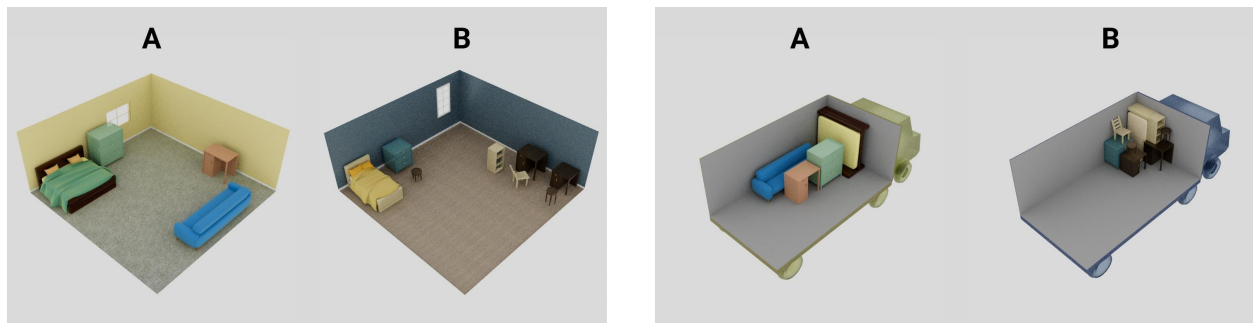


Figure 2: Results for **E1** and **E2** (main experiments).

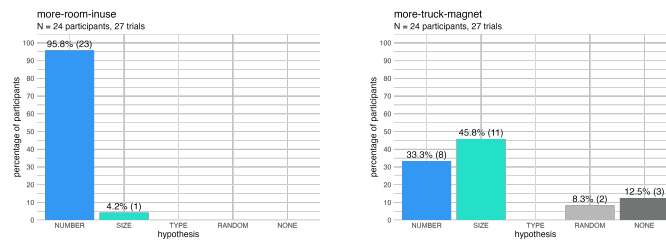
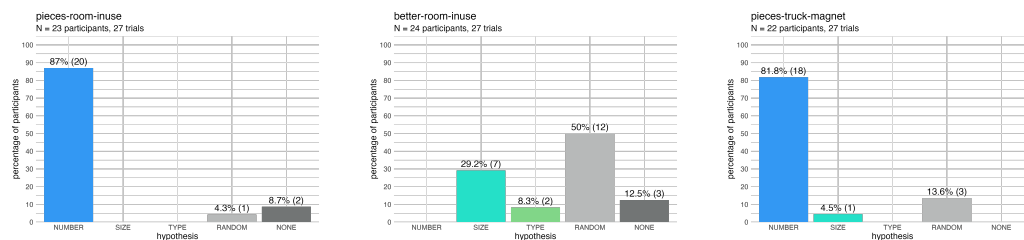


Figure 3: Results for **E3**, **E4**, and **E5** (control experiments).



References. **[BB09]** Bale and Barner (2009). The interpretation of functional heads: Using comparatives to explore the mass/count distinction. *Journal of Semantics*. **[BS05]** Barner and Snedeker (2005). Quantity judgments and individuation: evidence that mass nouns count. *Cognition*. **[GL]** Grimm and Levin (submitted). Furniture and other artifactual aggregates. University of Rochester m.s. **[H09]** Hunter et. al (2009). Restrictions on the meaning of determiners: typological generalisations and learnability. *Semantics and Linguistic Theory*. **[R17]** Rothstein (2017). *Semantics for Counting and Measuring*. Cambridge University Press. **[W19]** Wellwood (2019). *The Meaning of More*. Oxford University Press.