Context effects in the interpretation of Haddock descriptions

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The interpretation of definite descriptions (e.g. *the rabbit*) has been claimed to involve pragmatic context accommodation, such that a sub-portion of the maximally available context may be considered for their interpretation (Evans 2005; Frazier 2008; Muhlstein 2015). This mechanism ensures that reference resolution is successful, even when the maximal context would violate the uniqueness presupposition of the definite article. Here we address the cost of context accommodation using complex descriptions such as *the rabbit in the (big) box*, also known as 'Haddock descriptions' (Haddock 1987). In two reference-resolution studies, we address whether context accommodation of Haddock Descriptions is less felicitous when the embedded description (e.g. *the (big) box*) would successfully refer to a different object in the maximal context.

The phenomenon: In Figure 1, Panel A, there are multiple bags, so *the bag* fails to refer. Yet the Haddock description (HD) *the rabbit in the bag* refers to R2; suggesting *the bag* is evaluated relative to a restricted context here. In Panel B, *the big bag* refers to R3 when evaluated against the maximal context, yet the modified HD *the rabbit in the big bag* refers to R2. With the positive-form modifier (*big*), there is a *conflict* between the interpretation in the maximal context (R3) vs. the restricted context (R2). Comparative modifiers (*the rabbit in the bigger bag*) resemble the unmodified case; there is a failure of reference in isolation, as *the bigger bag* requires two bags, not three, while the HD refers to R2. Our experiments take advantage of this distinction.

Experiment 1 ($N = 41$) tests unmodified HDs. Participants heard definite descriptions while looking at visual contexts containing five pictures. The embedded noun was masked using static noise, so the instruction was always ambiguous between two potential referents (Target 1 and 2 in Figure 2). Participants clicked on the target they thought was intended by the speaker. Two types of contexts were tested (see Figure 2, middle panels): 1) contexts where the potential targets were also the referent of the embedded DP when interpreted isolation in the maximal context ($-$competitor); 2) contexts where one of the resolutions of the embedded DP would be undefined if interpreted in isolation in the maximal context ($+$competitor, e.g. contexts containing two bags but only one box). Results did not reveal any differences in the target selection rates in the two conditions tested ($p > 0.05$, see Figure 2 rightmost panel), suggesting that undefined interpretations of the embedded DP in the maximal context do not interfere with reference resolution of HDs.

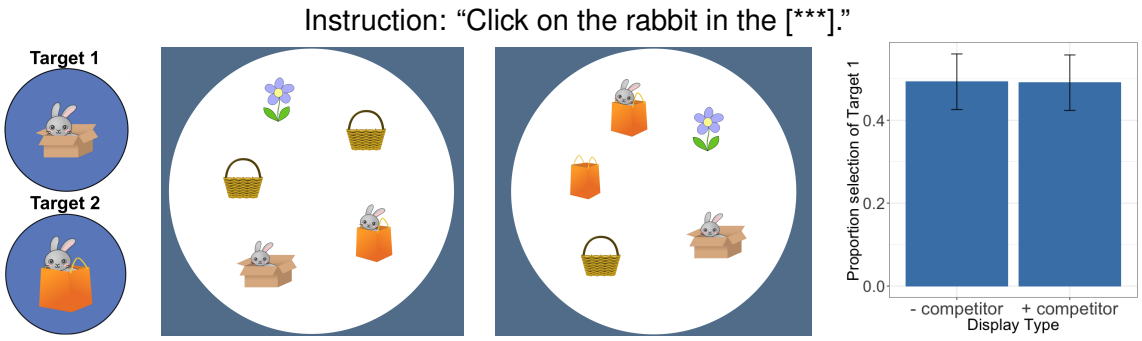
Experiment 2 ($N = 75$) tests HDs modified by a positive or comparative adjective (e.g., *the rabbit in the big/ger box*) using the same method described in Exp. 1. Besides the competitor manipulation, Exp. 2 also manipulated the informativity of the instruction (i.e., whether the modifier was necessary to identify the referent of the HD). This resulted in two types of displays: displays where only one or both potential targets required the use of the modifier for successful reference (contrast:mixed vs. contrast:both, see Figure 3). Results are presented in Figure 4. A significant competitor $\times$ adjective interaction was found for contrast:mixed conditions such that the presence of a competitor object increased clicks to Target 1 for the positive form adjective but not for the comparative ($p < 0.05$). The same effect occurred in contrast:both, compared to chance: presence of a competitor acted as a deterrent, with the positive form but not for the comparative form.

Conclusion: Our findings show that context accommodation for HDs is more difficult when the embedded definite would refer to a different individual in the maximal context. These findings suggest that listeners assign non-trivial probability mass to maximal contexts even when they are ruled out by independent linguistic constraints. We also present results from a computational Rational Speech Model (e.g. Frank Goodman 2012) that derives our experimental findings from pragmatic context coordination and uncertainty about how to resolve the adjectival threshold.

the bag: Undefined
[the rabbit in] the bag: R2

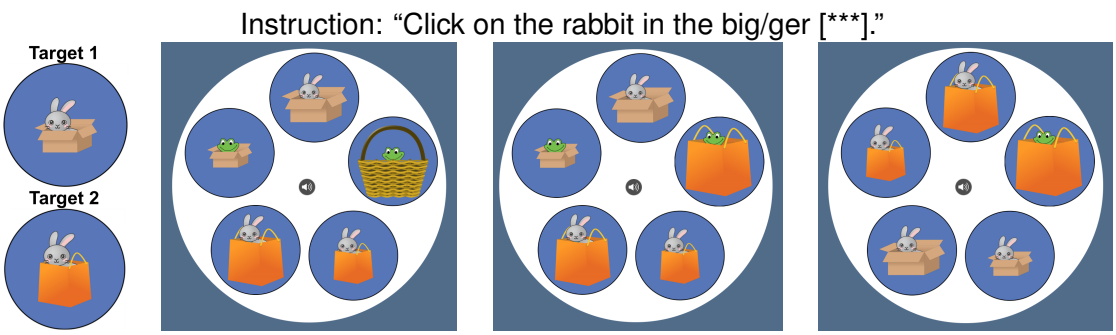
the big bag: R3 / *the bigger bag*: Undefined
[the rabbit in] the big/ger bag: R2

Figure 1: Accommodation-requiring contexts for Haddock descriptions.



−competitor +competitor

Figure 2: Example item for Exp. 1 (left); Exp. 1 results (right).



contrast:mixed/−comp. contrast:mixed/+comp. contrast:both/+comp.

Figure 3: Example item for Experiment 2.

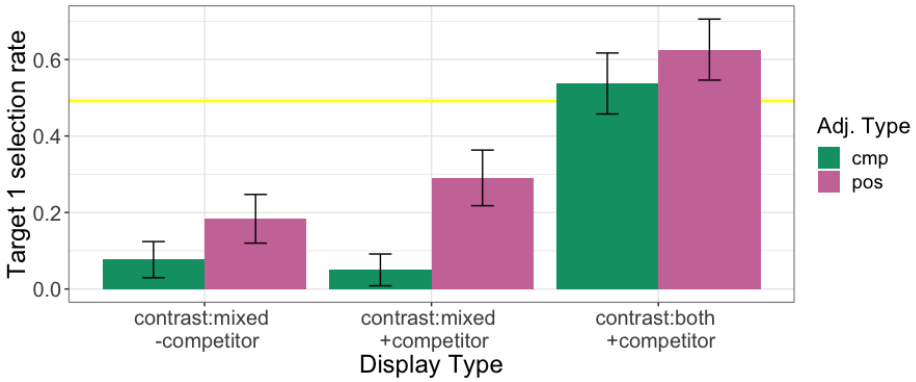


Figure 4: Experiment 2 results (yellow line indicates chance).