Maximize Presupposition Effects in Haddock-Descriptions

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1. Haddock’s puzzle: Haddock (1987) pointed out that given a scene like (2) and assuming that speaker and audience are cognizant of its properties the definite descriptions in (1-a) is felicitous as a means of referring to the rabbit that is in one of the hats – despite the fact that there are evidently two hats in the context.

(1) a. The rabbit in the hat is excited.
   b. #The excited rabbit is in the hat.

Importantly, in (1-b) the definite article on the hat is infelicitous. Instead, an indefinite determiner (a) is required, suggesting that the visual information alone does not make the relevant hat salient enough to license the uniqueness presupposition of the hat in (1-a). Rather, its felicity appears to depend on a particular syntactic configuration – nesting of the Haddock-description (HD) inside another definite, (Champollion&Sauerland’11 (C&S11), Bumford’17 (B17), etc.).

2. HDs as an instance of reference resolution via presupposed content: HDs, we propose, are instances of situational uniqueness definites (e.g. Schwarz’09). Concretely, following Heim’82, we take the to introduce an index i whose value must be given by the assignment g while the NP sister of the contributes a constraint on the values for i in the form of a presupposition, (3).

(3) ⟦the⟧g = λf: f ∈ D⟨e,t⟩ & f(g(i))=1. g(i)

Note that on this construal the does not introduce a uniqueness requirement. Rather (much like free pronouns), using [the; α] obligates the speaker to ensure that the intended referent for [the; α] is recoverable for her audience based on the utterance context and the constraints introduced by α. Crucially, in a nested structure, (1)a, the constraints on referents result in a complex constraint on referents for the larger DP, (4). For non-nested cases, (1)b, however, the constraints project separately and do not yield a complex constraint tied together by the in-relation, (5).

(4) ⟦the; rabbit in the; hat⟧g = g(7) is a hat & g(8) is a rabbit & g(8) is in g(7). g(8)
(5) ⟦the; rabbit is in the; hat⟧g = g(8) is a rabbit & g(7) is a hat. g(8) is in g(7).

Note that (4) and (5) express the same content, albeit organized differently: in (4) the information to identify the intended referents (that there is a unique rabbit in a unique hat) is presupposed while in (5) it is asserted. To exploit this distinction we need a principle like (6), (Hackl’19).

(6) Constraint on Reference Resolution: Presupposed content of an utterance can be used for identifying the extension of referring expressions, at-issue content cannot.

A striking fact of (6) is that it predicts assertions to exhibit Haddock-like licensing of the when a suitable presupposition trigger is added, compare (7) to (1)b.

(7) The excited rabbit is in the hat again.

3. Maximize Presupposition (MP) effects in HDs: We present experimental evidence that HDs exhibit asymmetrical MP effects wrt. the two determiner positions and argue that while C&S11 and B17 predict (different) parts of the observed patter only the present theory can explain all of it.

3.1 Experiments 1-2: We designed a binary, forced choice sentence completion task on two sentence types (Assertion, (8), or Haddock, (9)) describing a scene as in (10). For each sentence, participants had to choose between {the/a} in one of two positions (Pos1, Pos2) with

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the determiner in the other position being set to *the* in Experiment 1,3 and to *a* in Experiment 2,4. **Experiments 3-4** were identical to Experiments 1-2 with the exception that *(8)a,b* included the presupposition trigger *back*.

(8) a. Jack put {the/a} orange heart (back) inside the/a circle.
   b. Jack put the/a orange heart (back) inside {the/a} circle.

(9) a. Jack colored {the/a} heart inside the/a circle orange.
   b. Jack colored the/a heart inside {the/a} circle orange.

Participants saw 6 instances of each combination of Sentence Type and Position (24 total target items per experiment) together with 28 filler and 12 attention check items presented via a custom script run on UPenn’s PC-IBex platform. Participants (*n = 165; ≈ 40 for each experiment*) were recruited via www.prolific.co.

3.2 Results: Figure *(11)* summarizes the results plotting rate of *the* choices across our four conditions for Experiments 1-4.

![Graph](image)

Lme-logit modelling reveals significant (*p ≤ 0.5*) Sentence-Type x Position interactions for each experiment with *the* choices increasing for Haddock sentences but less so in *Pos2*. We also observe significant (*p ≤ 0.5*) 3-way interactions when comparing Experiment 1 and 3 / Experiment 2 and 4 due to a marked increase of *the* choices in *Pos2* for assertions in Experiments 3 and 4 which contain the presupposition trigger *back*. **3.3 Discussion:** *(8)a,b* without back serve as baselines: the *in*-relation claimed to hold between the relevant heart and circle is part of the asserted content since the two DPs are co-arguments of *put* and so not nested. Given that uniqueness is not satisfied for hearts or circles in the scene as a whole, *the* is not licensed in any slot and participants should prefer *a* irrespective of the fixed determiner. *(9)* by contrast, is expected to exhibit differential preferences depending on the position and nature of the fixed determiner: For *(9)* and the determiner in *Pos1* set to *the*, speakers can optionally construe *the* as situational uniqueness definite. In that case the presupposition is parallel to *(4)*. Its competitor *a* would yield a weaker presupposition (*g*(8) is a rabbit & ∃x[ x is a hat & *g*(8) is in x]) and so would be blocked by MaxP. However, since *the* is ambiguous in English, speakers also have the option to not construe *the* as situational uniqueness definite. Doing so yields a preference for *a* since uniqueness is not satisfied for circles in the scene as a whole. Thus, we predict optional MaxP effects in this case – consistent with our higher rates of *the* choices compared to its baseline. For *(9)*, by contrast, both construals of *the* are licensed (there is exactly one circle with an orange heart inside). Thus we predict "stronger" MaxP effects, evident in our data by yet higher rates of *the* choices. Finally, while (part of) this pattern is consistent with C&S11 and B17, neither expects our data in Experiments 3,4 indicating that assertions behave more like HD when an additional presupposition trigger (*back*) is introduced.