

**In times of crisis, stage-level predicates facilitate deixis**

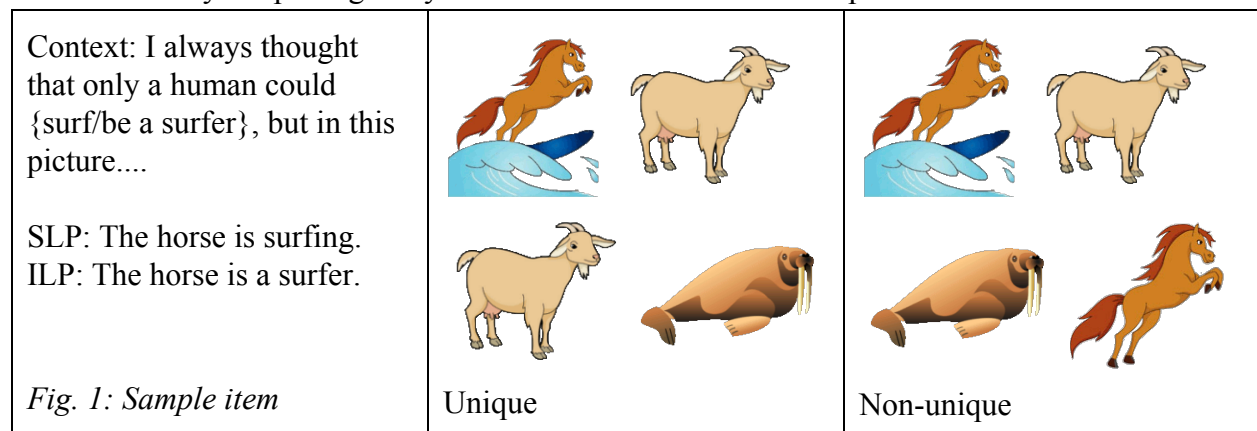
**Background** In a visual world study, Bosch et al. (2011) investigate the effect of anaphoricity, uniqueness and visual salience on the comprehension of German singular definites. They find that reference resolution for first-mention definites (henceforth *deictic* definites) takes longer than for anaphoric definites, but only when the target referent fails to uniquely satisfy the definite descriptive content. Visual salience also produces a significant advantage, but to a lesser extent than uniqueness. From this, the authors conclude that a Lewisian notion of situational salience cannot supplant uniqueness in the conventional meaning of the definite determiner, but may play a role as part of a repair strategy.

**Predicate-conditioned situational salience** Bosch et al.’s design relies on visual manipulations, but the question arises as to whether situational salience can be evoked linguistically. To cash out the idea that salience is used as a repair strategy, we adopt the specific assumption that listeners first attempt to satisfy uniqueness globally, and that in case this fails, salience serves a catalytic role in selecting a domain within which uniqueness can be satisfied locally. We hypothesized that stage-level predicates (SLPs) could direct a listener’s attention to a subscene in a way that individual-level predicates (ILPs) could not.

The interpretation of definite subjects has been argued to depend on the stage-/individual-level distinction previously by Jäger (1999). According to him, SLPs allow both deictic and anaphoric interpretations, while ILPs only allow the latter. This makes the strong prediction that (1a) should be felicitous only when a tall man has been previously mentioned in--or can be inferred from--the discourse. If, on the other hand, SLPs merely facilitate domain selection, then we predict a penalty for (1a) relative to (1b) only when global uniqueness doesn’t hold.

- (1) a. The linguist is a trumpeter.      b. The linguist is playing trumpet.

**Experiment** An online experiment was conducted to test the effect of (non-)uniqueness and predicate type (SLP/ILP) on the interpretation of deictic definite subjects. A version of the truth-value judgement task was used, where the 64 native English speakers were told that images and sentences had been shuffled to create pairings. They were asked to rate on a 5 point Likert scale how likely the pairings they saw were to be faithful to their pre-shuffled state.



As shown in figure 1, the 12 experimental items came in the four conditions obtained by crossing predicate type and uniqueness. 6 true and 6 false control items were presented, as well as 4 filler items of the form “One of the horses is surfing” (where the image showed a single horse). We hypothesized that exposure to these pragmatically infelicitous fillers would sensitize participants to cardinality and infelicity.

**Results** Performance on the controls was as expected (mean rating for false = 1.18, with all responses  $\leq 2$ , mean rating for true = 4.78, with all responses  $\geq 4$ ). Non-uniqueness significantly degraded the ratings, but the effect was stronger in the case of ILPs. We fit a linear mixed effects model with maximal random effect structure for item and participant

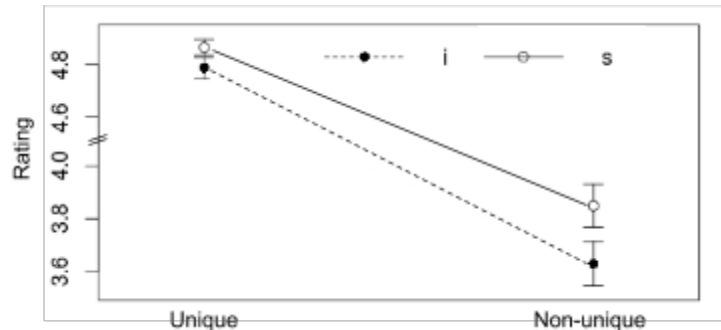


Fig. 2: Differential penalty for non-uniqueness

(formula  $Rating \sim Uniq + Uniq:Pred + (1 + Uniq*Pred | Part) + (1 + Uniq*Pred | Item)$ ). The effect of uniqueness was significant ( $p < 0.001$ ), as was the effect of predicate in the non-unique conditions ( $p = 0.005$ ). However, no significant difference was observed between the unique conditions ( $p = 0.237$ ).

**Discussion** The results are compatible with the view that uniqueness is sufficient but not strictly necessary to identify the intended referent of a singular definite subject, and that the content of SLPs can be used as part of a fall-back strategy. However, they invite a number of questions.

Most predicate-conditioned subject effects discussed in the semantics literature take as their starting point a representational ambiguity for SLPs. This kind of approach is possible here too. We propose the dynamic formalization in (2). The definite determiner includes a weak maximality presupposition (indicated with Beaver’s partial operator  $\partial$ ). In (2a), this enforces the uniqueness of any horse in the traditional sense. In (2b), the SLP’s content restricts the presupposition, requiring instead the uniqueness of any surfing horse.

- (2) a.  $\exists x[\partial \neg \exists y[x < y \ \& \ \text{horse}'y] \ \& \ \text{horse}'x] \ \& \ \text{surfing}'x$   
 b.  $\exists x[\text{surfing}'x \ \& \ \partial \neg \exists y[x < y \ \& \ \text{horse}'y] \ \& \ \text{horse}'x]$

Although this is how we originally approached the problem, it would seem to miss the important point that non-unique readings are not *enabled* by SLPs, but merely *facilitated*. The problem, then, is a familiar one: our formal models posit clear-cut qualitative differences, but the behavioral data suggest a subtle processing advantage. Although this problem is quite general, there is no all-purpose solution to it. We consider a few options, none of them truly satisfying.

**Selected references**

Bosch, Peter, Sascha Alexeyenko, Kerstin Brukamp, Maria Cieschinger, Xiaoye Deng, Peter König. 2011. Salience is only a poor substitute for uniqueness. PRE-CogSci 2011, handout.  
 Jäger, Gerhard. 1999. Stage levels, states, and the semantics of the copula. In E. Lang and L. Geist, eds., ZAS Papers in Linguistics 14. ZAS Berlin.