Uniqueness and familiarity in the comprehension and production of definite descriptions

Theories of definiteness have long been divided on whether definite descriptions denote a referent that is unique (Russell, 1905; Evans, 1977; Roberts, 2003) or one that is familiar, in the sense that it has been previously mentioned (Kamp, 1981; Heim, 1982). More recent theories take *either* uniqueness *or* familiarity to be a sufficient condition for a definite description to be felicitous. This may be encoded through ambiguity, as suggested in Schwarz (2009)—a move supported by languages like German where uniqueness and familiarity are morphologically distinct. An alternate possibility is under-specification, as suggested in Farkas (2002): either uniqueness or familiarity can satisfy *determined reference*. Despite being conceptually different, both these hybrid approaches predict unique and familiar referents to equally license definite descriptions.

The goal of the current paper is to test this prediction experimentally, by manipulating UNIQUENESS and FAMILIARITY in a 2x2 within-subjects design. There were 32 different stories, each mentioned 2 interlocutors and 2 potential referents. UNIQUENESS was manipulated by changing whether a property (e.g., *"door"*) held of just one referent (a door and a locker), or of both referents (2 doors). FAMILIARITY was manipulated by including (or not) a mention of one referent that has the property (the relevant sentence is marked in blue in the table below). The final utterance – which was the same across conditions – contained the critical definite (marked in grey).

	[-unique]	[+unique]
[-familiar]	A building caretaker and a tenant were walking down a corridor. They came to <u>a door</u> which wouldn't shut properly and <u>a door</u> which had a large crack in it. Then, the tenant said, "How long will it take to repair the door?"	A building caretaker and a tenant were walking down a corridor. They came to <u>a locker</u> which wouldn't shut properly and <u>a door</u> which had a large crack in it. Then, the tenant said, "How long will it take to repair the door?"
[+familiar]	A building caretaker and a tenant were walking down a corridor. They came to <u>a door</u> which wouldn't shut properly and <u>a door</u> which had a large crack in it. The caretaker said, "The cracked door seems like a real piece of work!". The tenant nodded. Then, the tenant said, "How long will it take to repair the door?"	A building caretaker and a tenant were walking down a corridor. They came to <u>a locker</u> which wouldn't shut properly and <u>a door</u> which had a large crack in it. The caretaker said, "The cracked door seems like a real piece of work!". The tenant nodded. Then, the tenant said, "How long will it take to repair the door?"

Experiment 1: Comprehension. Participants (n=32) read each story in one of the four conditions, and were asked to choose a referent for the final definite description, choosing between *"the door which wouldn't shut"*, *"the door with the crack"*, and I DON'T KNOW.

Responses are summarized in Figure 1. As expected, participants were the least sure about the identity of the referent in [-unique –familiar: GREY], and chose I DON'T KNOW 54% of the time (the referents were chosen roughly equally, indicating the materials are overall balanced). When the intended referent was [-unique +familiar: BLUE], it was chosen at 66%, a significant increase from [-unique -familiar] (glmer: β = 2.6, p < .001), indicating that definite descriptions indeed pick out a familiar referent. Importantly, however, when the intended referent was instead unique and <u>*not*</u> familiar [+unique – familiar: YELLOW], it was selected at 80%, a
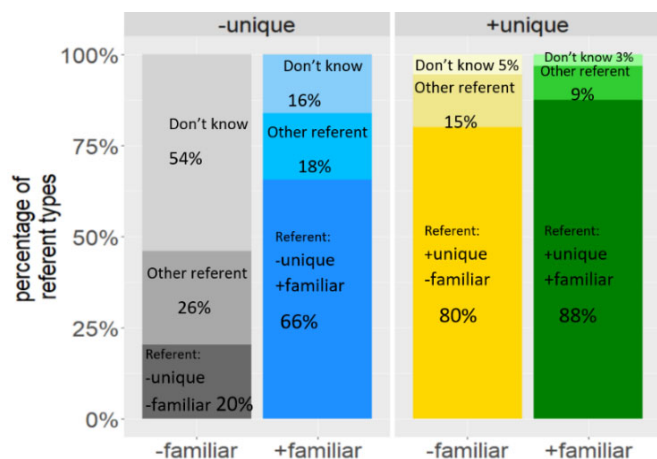

Figure 1

significant increase from [-unique +familiar] (*β* = 1.3, *p* < .001). Finally, when the intended referent was [+unique +familiar: GREEN], it was chosen 88% of the time, not significantly different from [+unique -familiar] (*β* = 0.5, *p* = .21), suggesting that familiarity and uniqueness do not together provide a stronger cue than uniqueness alone. This pattern is surprising under any theory that take uniqueness and familiarity to be equal cues. Instead, the data points to a theory which is able to (i) take them both as cues, and (ii) represent an asymmetry between them, with the former providing a stronger cue.

Experiment 2: Production. To ensure that the asymmetry between familiarity and uniqueness is not an artifact of the forced-choice design, we used the same materials in a production fill-in-the-blank experiment. We took the materials from Exp. 1 and replaced the critical definite description (grey highlight) with an empty box. Participants (n=32) were told that "some information will be missing, and we ask you to fill in the blank" (they were not instructed what to say). Figure 2 summarizes the patterns for cases where participants produced definite descriptions (55% of the trials). For each case, we coded whether participants used a modifier:

We reasoned that a bare definite without any disambiguating modifiers (e.g., *"the door"*) would only be used if participants found the intended referent did not need any further semantic clarification, and a modifier (e.g., *"the cracked door"*) would be used if more information was required to achieve uniqueness. Bare definite descriptions were produced significantly less in the [-unique] than in [+unique] conditions (45% vs. 65%: *β*=1.1, *p*=.002). This main effect indicates – as expected – that uniqueness (i.e., a context with one door) licensed a bare definite. Crucially, however,
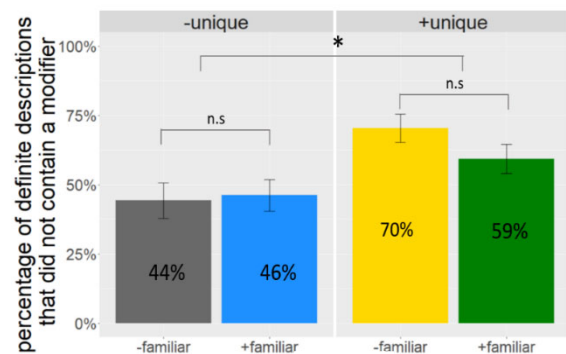

Figure 2

familiarity did <u>not</u> have any significant effect here: a [-unique +familiar: BLUE] referent was referred to with a bare definite just as much as a [-unique –familiar: GREY] one (46% vs. 44%: *β*=-0.27, *p* =.14). This indicates that familiarity alone does not give the referent appropriate for a bare definite in a parallel way to uniqueness, an unexpected result under either of the hybrid theories.

Conclusions & Modelling. Our data provides evidence, first, that both uniqueness and familiarity can license definite descriptions in English. However, we find an asymmetry between uniqueness and familiarity which is not predicted by current approaches. This probably arises from familiarity being a more continuous measure, as referents can be mentioned and re-mentioned, compared to uniqueness which is categorical. We implement this in the probabilistic framework of reference proposed by Heller, Parisien and Stevenson, (2016). This framework captures, in each referential domain, the prior probability that each object would be referred to, and the likelihood of different objects given a referring expression. To model the current results, the referential domain consists of both the inanimate referents, and the likelihood of an object given the critical referring expression – the definite *"the door"* – depends *only* on what objects are in the referential domain, namely whether there are one or two doors. The effect of familiarity is encoded within the prior term: in conditions where no referent is familiar, the prior probability mass is distributed equally between the two referents, whereas in cases where a referent is mentioned, the prior probability shifts in favor of the mentioned – or familiar referent – by a parameterized, additive measure, a construal which achieves the desired graded effect for familiarity. We conclude that our findings support an underspecified semantics, coupled with probabilistic pragmatics.

Selected References. Farkas, Donka F. (2002). Specificity distinctions. *Journal of Semantics* • Heller, D., Parisien, C., & Stevenson, S. (2016). Perspective-taking behavior as the probabilistic weighing of multiple domains. *Cognition* • Roberts, C. (2003). Uniqueness in definite NPs. *Linguistics & Philosophy* • Schwarz, F. (2009). Two types of definites in natural language.