

An experimental investigation of the semantics and pragmatics of specificity

keywords: specificity, ‘a certain’, identifiability, choice functions

In the vast body of literature on the semantics and pragmatics of specificity, many theoretical claims rest upon fairly subtle linguistic judgments. **The goal of the present paper is to investigate two such claims (one semantic and the other pragmatic) experimentally, thus providing support for formal accounts of specificity.** The focus of the investigation is on *a certain*-NPs in English, a type of specific indefinite.

Study1: It is well-known that NPs with both *a* and *a certain* can scope out of islands, resulting in either widest-scope (1a) or intermediate-scope (1b: cf. the scenario in (2)) readings (Farkas 1981, Ruys 1992, i.a.), whereas only *a*-NPs may take narrow scope (1c). The long-distance readings in (1a-b) have been captured on *choice-function* (CF) analyses, where the CF is either existentially closed (3) (Reinhart 1997, Winter 1997) or contextually determined (4) (Kratzer 1998). While both analyses work for (1), Schwarz (2001) shows that they make different predictions when the CF is in the scope of a downward monotone quantifier (5) (cf. Chierchia 2001). A contextually determined CF allows for a functional reading ((5a), cf. scenario in (6)), whereas an existentially closed CF results in narrow scope (5b). The readings in (5a-b) are available for *a certain*-NPs and *a*-NPs, respectively, resulting in different truth-conditions for (6a-b).

We tested Schwarz’s claims empirically, via an online judgment task administered to 40 native English speakers. Subjects had to judge the appropriateness of target sentences such as (1) and (5) (half with *a*-NPs and half with *a certain*-NPs) in the context of scenarios such as (2) and (6) (as well as other scenarios designed to match widest-scope and narrow-scope readings, and filler scenarios; 64 items total). The results are reported in (7)-(8). The fact that *a certain*-NPs were accepted significantly more than *a*-NPs in functional-reading scenarios (8d vs. 7d) **lends support to Schwarz’s proposal that *a certain*-NPs but not *a*-NPs should be analyzed via contextually determined CFs.** We furthermore argue that the lower acceptance of *a certain*-NPs with intermediate scope (8b) and functional (8d) readings, compared to widest-scope readings (8a), is consistent with Schwarz’s proposal, because intermediate/functional readings, but not widest-scope ones, require Skolemization (cf. Kratzer 1998, Chierchia 2001). While Skolemization is a semantic mechanism, its availability is pragmatically determined, depending as it does on the presence of a salient functional relationship (e.g., between professors and students in (2)). Speaker variability in accepting the intermediate/functional readings of *a certain* is thus attributed to pragmatics. In contrast, for *a*-indefinites, intermediate scope readings, just like widest-scope readings, result from a purely semantic operation (such as Existential Closure in (3)): no pragmatics-dependent mechanism is involved, so intermediate scope readings are as easy to obtain as widest-scope ones (cf. (7a-b)).

Study2: The above findings show that the felicitousness of *a certain*-NPs is influenced by pragmatics. Our second study probes pragmatics in more depth, taking as its starting point the observation of Abusch and Rooth (1997) / Farkas (2002) that *a certain*-NPs carry a condition of *identifiability*. We set out to examine whether use of *a certain* implies identifiability by the speaker (9a), identifiability by anyone in the context ((9b), cf. Abusch and Rooth 1997), or inherent identifiability not dependent on anyone in the context ((9c), cf. Farkas 2002, 2007), comparing (9a-c) to lack of identifiability (9d). 24 native English speakers took an online test asking them to judge the acceptability of sentence pairs like those in (9), half with *a* and half with *a certain*, using a scale from 1 to 4; the results are given in (9). A repeated-measures ANOVA showed that both determiner type and identifiability had significant effects ($p < .001$), with a significant interaction, due to a much greater effect of identifiability for *a certain*-NPs than for *a*-NPs – consistent with Farkas (2002). The gradual decline in acceptability for (9a-b) vs. (9c) vs. (9d) with *a certain*-NPs suggests that pragmatic requirements result in gradable, rather than absolute, judgments.

Conclusion: The results of these two studies show the importance of testing theoretical claims using experimental methods. **First, our findings yield strong support for two theoretical accounts of *a certain*-NPs:** a semantic analysis in terms of contextually determined CFs, and a pragmatic analysis of identifiability. We will show that these two accounts are fully compatible, with identifiability providing a pragmatic constraint on CF availability. Second, we see that purely semantic operations result in clear-cut speaker intuitions, whereas the involvement of pragmatics leads to more variable and/or gradable judgments. These findings have important implications for semantic vs. pragmatic accounts of specificity, and lay the groundwork for further experimental investigations into the nature of specificity marking.

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- (1) Every professor thinks that a (certain) student will fail the exam.
 - a. $\exists y [y \text{ is a student} \ \& \ \forall x [x \text{ is a professor} \rightarrow x \text{ thinks that } y \text{ will fail the exam}]]$: widest scope
 - b. $\forall x [x \text{ is a professor} \rightarrow \exists y [y \text{ is a student} \ \& \ x \text{ thinks that } y \text{ will fail the exam}]]$: intermediate scope
 - c. $\forall x [x \text{ is a professor} \rightarrow x \text{ thinks that } \exists y [y \text{ is a student and } y \text{ will fail the exam}]]$: narrow scope
- (2) *Scenario matching the intermediate-scope reading in (1b)*
 Every professor has one student in his or her class who is a really terrible student, a student that the professor is sure will fail the qualifying exam that all students in this department have to pass. For instance, Dr. Smith thinks that Sarah will fail the exam, Dr. Johnson expects Roger to fail, and Dr. Chung is sure that Chris will fail. Interestingly, all of the professors expect different students to fail.
- (3) Existentially closed choice functions:
 - a. $\exists f [[\text{every professor}] \lambda_1 [t_1 \text{ thinks that } f_1(\text{student}) \text{ will fail the exam}]] \rightarrow$ widest scope
 - b. $[[\text{every professor}] \lambda_1 \exists f [t_1 \text{ thinks that } f_1(\text{student}) \text{ will fail the exam}]] \rightarrow$ intermediate scope
- (4) Contextually determined choice functions: (the superscript ^s stands for ‘speaker’)
 - a. $[[\text{every professor}] \lambda_1 [t_1 \text{ thinks that } f^s(\text{student}) \text{ will fail the exam}]] \rightarrow$ widest scope
 - b. $[[\text{every professor}] \lambda_1 [t_1 \text{ thinks that } f^s_1(\text{student}) \text{ will fail the exam}]] \rightarrow$ intermediate scope

the subscript ₁ in f^s_1 is a Skolem index bound by the higher quantifier (cf. Chierchia 2001, Schwarz 2001)
- (5) No girl₁ talked with a (certain) teacher of hers₁.
 - a. $[\text{no girl}] \lambda_1 [t_1 \text{ talked with } f^s_1(\text{teacher of hers}_1)] \rightarrow$ functional reading; paraphrase: no girl talked to the teacher who is in a particular functional relationship to her (e.g., the ‘tough teacher’ function)
 - b. $[\text{no girl}] \lambda_1 [\exists f [t_1 \text{ talked with } f(\text{teacher of hers}_1)]] \rightarrow$ narrow-scope reading
paraphrase: no girl talked with *any* teacher of hers
- (6) At the party in this girls’ school, each student made great efforts to avoid the teacher that had given her a bad grade. Different students were avoiding different teachers: for example, Helen made sure not to talk to Mr. Loe, while she did talk to all the other teachers; on the other hand, Janet talked to Mr. Loe just fine, but made sure to avoid Ms. Jenkins. And so on for the other students.
 - a. No girl talked with a certain teacher of hers. \rightarrow true (functional reading available)
 - b. No girl talked with a teacher of hers. \rightarrow false (only narrow-scope reading available)

(7)-(8) Mean % of acceptance of target sentences as appropriate, in different scenario types

scenario target sentence	matching widest scope (1a)	matching intr. scope (1b)	matching narrow scope (1c)	matching functional reading (5a)
(7) with <i>a</i> -NP	(7a) 98%	(7b) 96%	(7c) 99%	(7d) 14%
(8) with <i>a certain</i> -NP	(8a) 93%	(8b) 74%*	(8c) 31%*	(8d) 54%*

*significant difference between *a*-NP and *a certain*-NP target sentences, $p < .01$

- (9) a. The answer to this ancient riddle is contained in *an / a certain* old document. I’m not going to tell you what document that is – figure it out yourself. **mean rating: *a*: 3.5, *a certain*: 3.5**
- b. The answer to this ancient riddle is contained in *an / a certain* old document. I don’t know what document that is, but all I have to do is ask the museum curator. **mean rating: *a*: 3.6, *a certain*: 3.5**
- c. The answer to this ancient riddle is contained in *an / a certain* old document. The problem is that no one knows what document that is. **mean rating: *a*: 3.5, *a certain*: 3.2**
- d. The answer to this ancient riddle is contained in *an / a certain* old document. It could be any document. **mean rating: *a*: 3.0, *a certain*: 2.1**

Selected References: Abusch, D. & M. Rooth. 1997. Epistemic NP modifiers. *Proceedings of SALT 7*. Chierchia, G. 2001. A puzzle about indefinites. In *Semantic Interfaces: Reference, Anaphora, and Aspect*. Stanford: CSLI. Farkas, D. 2002. Varieties of indefinites. *Proceedings of SALT 12*. Kratzer, A. 1998. Scope or pseudo-scope? Are there wide-scope indefinites? In S. Rothstein (ed.), *Events in Grammar*, 163-196. Reinhart, T. 1997. Quantifier scope: How labor is divided between QR and choice functions. *Linguistics and Philosophy*, 20, 335-397. Schwarz, B. 2001. Two kinds of long-distance indefinites. *Proceedings of the Thirteenth Amsterdam Colloquium*, 192-197. Winter, Y. 1997. Choice functions and the scopal semantics of indefinites. *Linguistics and Philosophy*, 20, 399-467.