

Brief article

The role of perspective in identifying domains of reference ☆

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ABSTRACT

We used the contrastive expectation associated with scalar adjectives to examine whether listeners are sensitive to the distinction between common and privileged information during real-time reference resolution. Our results show that listeners used this distinction to narrow the set of potential referents to objects with contrasts in common ground from the earliest moments. These results extend previous evidence that ground information influences real-time language processing by showing that the distinction between common and privileged information is used without being triggered by unusual circumstances.

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1. Introduction

Formal theories of conversation assume that interlocutors are sensitive to each other's knowledge and how it differs from their own. Accounts of the felicity conditions for making assertions, asking questions, and using referring expressions often appeal to the distinction between information in the interlocutors' common ground and information that is privileged to the speaker or the addressee. For example, imperatives typically refer to information in common ground, whereas questions inquire about information that is privileged to the addressee.

Determining what is common and what is privileged requires computing information from multiple sources, including the physical and the linguistic context. Therefore, these computations may be too slow or burdensome for real-time processing. Support for this view comes from

Keysar, Barr, Balin, and Brauner (2000), who examined the time-course of perspective-taking using visual-world eye-tracking (Cooper 1974; Tanenhaus, Spivey-Knowlton, Eberhard, & Sedivy, 1995). A confederate speaker instructed participants to manipulate objects in cubbyholes. Some objects were visible to both interlocutors and were thus in common ground by physical co-presence (Clark & Marshall, 1981). Others were visible only to listeners, and were thus in their privileged ground. Participants followed instructions like "pick up the small candle" where the display contained two shared candles that differed in size and a third smallest candle which was privileged to the listener. Listeners were more likely to first look at the privileged candle and sometimes even reached for it, before identifying the intended referent. Keysar et al. concluded that listeners' reference resolution proceeds initially relative to their egocentric perspective, ignoring the distinction between common and privileged ground.

Other studies have found early effects of ground. Nadig and Sedivy (2002) and Hanna, Tanenhaus, and Trueswell (2003) compared conditions in which a referring expression was ambiguous between two objects in common ground with conditions in which one of these objects was privileged. In Hanna et al. Experiment 1, for example, the confederate instructed listeners to "put the blue circle

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above the red triangle”, comparing conditions with two shared red triangles to conditions where one of them was privileged to the listener. When both objects were in common ground, listeners were equally likely to look at either, but when one object was privileged, listeners were more likely to look at the shared object from the earliest moments and were faster to choose it (although they were more likely to look at a privileged competitor than at an unrelated privileged object). In these studies, the referring expressions were globally ambiguous and thus infelicitous from the listener’s perspective (also see [Hanna & Tanenhaus, 2004](#)). Since the ambiguity can only be resolved by appealing to ground information, these findings are consistent with an “egocentric-first” heuristic, where ground information is used only when triggered by unusual circumstances, such as the infelicity caused by global ambiguity ([Keysar, Lin, & Barr, 2003](#)).

The current study asks whether listeners use ground information when there is nothing unusual in the instructions that might trigger them to rely on this kind of information. Participants played the role of addressee in a referential communication task while their eye movements were monitored. Common ground was established by physical co-presence. We exploited the contrastive function associated with scalar adjectives ([Sedivy, 2003](#)), employing it in a point-of-disambiguation manipulation ([Eberhard, Spivey-Knowlton, Sedivy, & Tanenhaus, 1995](#)). For example, in “pick up the big duck”, the scalar adjective “big” creates the expectation that the speaker will refer to the big member of a pair contrasting in size, rather than an object which is big in an absolute sense. When the visual context contains a size contrast, participants will often fixate on the big member of the contrast even before encountering information from the noun ([Sedivy, Tanenhaus, Chambers, & Carlson, 1999](#)). This allowed us to use instructions that were unambiguous, thereby avoiding any infelicity or other unusual circumstances that might encourage listeners to strategically use ground information.¹

We compared displays with one size contrast, which have an early point-of-disambiguation with displays containing two size contrasts, where disambiguation is not expected until the noun. We also manipulated whether one object was in the listener’s privileged ground. In displays with two size contrasts, this object was the competitor-contrast. The full design is depicted in [Fig. 1](#).

If listeners process egocentrically, the target in both conditions with two contrasts should not be identified until the noun is encountered, independent of the ground status of the competitor-contrast. If, however, listeners

¹ Preliminary evidence that ground information is used in the absence of global ambiguity comes from [Hanna et al. \(2003\)](#) Experiment 2, which exploited the contrastive function associated with adjectives like *empty*. In this experiment, the objects were visible to the listener only, and were wrongly described by the experimenter to the confederate speaker in a way that created mismatching perspectives. The results showed that listeners adopted the speaker’s perspective when interpreting the speaker’s instruction. It is possible, however, that the experimenter’s unusual error encouraged listeners to strategically adopt the speaker’s perspective. Moreover, it is possible that listeners adopted the speaker’s perspective because the speaker’s perspective was incompatible with their own perspective – this contrasts with all other studies discussed in this paper.

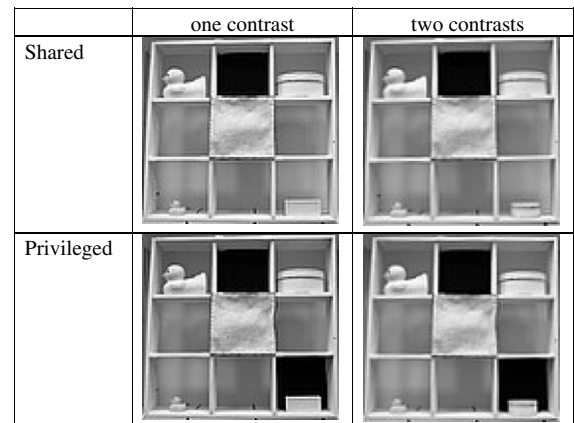


Fig. 1. Example displays for the instruction “pick up the big duck”. In the one contrast conditions the competitor-contrast (small box) was replaced by an unrelated object (a bar of soap). In the privileged conditions, these objects were only visible to the listener (squares backed by a black cloth were only visible to the listener).

encode whether information is common or privileged and use this distinction in real-time, the adjective should allow listeners to anticipate the target when the competitor-contrast is in their privileged ground, because they are not expecting the speaker to use a scalar adjective in referring to the competitor for which the speaker has no contrast.

Previous discussions have often contrasted an egocentric-first heuristic with a common-ground heuristic, where listeners interpret referring expressions relative to common ground, ignoring information in their privileged ground. However, as pointed out earlier, some types of utterances typically refer to information in common ground whereas others typically refer to privileged information ([Brown-Schmidt, Gunlogson, & Tanenhaus, 2008](#)). Therefore, optimal listeners should be sensitive to what information is shared and what information is privileged to them, as well as what information might be privileged to the speaker. This contrasts with the egocentric-first heuristic, where listeners initially ignore perspective information altogether, and with the common-ground heuristic where listeners focus solely on mutual information.

We use looks to privileged objects to assess whether listeners are ignoring information in privileged ground, as suggested by the common-ground heuristic. In particular, when a referent has a contrast, listeners will typically look at its contrasting object after identifying it ([Sedivy et al., 1999](#)). If listeners are aware of the contents of the information in privileged ground, we expect them to look at the privileged object more when it provides a potential contrast to another object in the display than when it is unrelated.

2. Methods

2.1. Participants

We present data from 16 participants, all native speakers of English from Rochester, NY. Four additional participants were excluded from analysis because of equipment problems or mistakes in the procedure. Participants were paid \$15.

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