



The Egocentric Basis of Language Use: Insights from a Processing Approach

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information from free-recall memory and conduct better organized interviews, thereby improving the overall informativeness of the interviews.

Notes

1. Address correspondence to Michael E. Lamb, Section on Social and Emotional Development, National Institute of Child Health and Human Development, 9190 Rockville Pike, Bethesda, MD 20814; e-mail: michael_lamb@nih.gov.

2. Readers interested in a more complete and exhaustively referenced review than is possible here are referred to Lamb, Sternberg, Esplin, Hershkowitz, and Orbach (1997).

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The Egocentric Basis of Language Use: Insights From a Processing Approach

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How do people use language to convey and understand intentions? We started investigating this question with the accepted assumption that, unlike young children, adult language users are not egocentric. Instead, we assumed that adults

rely on a "model of the other person's mind" when they use language. To our surprise, our experiments provided evidence against this fundamental assumption. In this article, we explain why we have come to the conclusion that adults routinely process language egocentrically, adjusting to the other's perspective only when they make an error.

THE ILLUSION OF TRANSPARENCY OF INTENTION

Olson and Torrance (1987) described how young children have difficulty evaluating the perspective of others. In their experiment, Lucy had an old and a new pair of red shoes. She wanted the new pair

but asked Linus to bring her the "red shoes." Because she used an ambiguous phrase, Linus had to guess, and he brought the wrong pair. The children in this study were surprised that Linus misunderstood her. In essence, the children behaved egocentrically: Because they knew Lucy's intentions, they concluded that Linus should have been able to understand which pair of shoes she desired.

In analogous studies with adults (Keysar, 1994), participants read that Jane recommended the restaurant Venezia to David.² In one version of the story, he went there for dinner and really liked it; in the other version, he hated it. The next day, he left her a note that said, "I went to the restaurant and it was marvelous, just marvelous." Just as the children knew which pair of shoes Lucy had in mind, the participants in this study knew that David was being sarcastic if he had hated the dinner but sincere if he had enjoyed it. The critical question was, what would Jane understand from the note? If the adult participants took Jane's perspective, then there would be no differ-

Recommended Reading

- Dell, G.S., & Brown, P.M. (1991). (See References)
- Fussell, S.R., & Kreuz, R.J. (Eds.). (1998). *Social and cognitive psychological approaches to interpersonal communication*. Hillsdale, NJ: Erlbaum.
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ence between the two conditions because Jane did not know what actually had happened. The results were surprising: Participants were more likely to say that Jane would perceive sarcasm when they knew that David was being sarcastic than when they knew he was sincere. Like Olson and Torrance's younger participants, adults attributed their egocentric knowledge of the speaker's actual intention to the uninformed addressee.

The phenomenon persisted even when the experiment controlled for how well the characters knew each other and even with a variety of different measures. We call this phenomenon "the illusory transparency of intention" because it suggests that once people know the intention behind an ambiguous utterance, it appears to be more transparent than it actually is.³

MENTAL PROCESSES DURING LANGUAGE USE: EGOCENTRIC PROCESSING AND PERSPECTIVE ADJUSTMENT

This phenomenon suggests the intriguing possibility that adults routinely process language egocentrically. This would be surprising because it is inconsistent with common belief as well as with the standard theory of the pragmatics of language use. One of the basic tenets of the standard theory is that language users follow the principle of *optimal design* (e.g., Clark, 1992; Clark & Marshall, 1981). According to this principle, speakers design their utterances so that their addressees have sufficient information to understand them. They do so by relying on information that they mutually believe is part of their "common ground" with their addressees. Similarly, addressees rely on common ground when they understand utterances because

they also assume that speakers observe the principle of optimal design.⁴

The possibility that adults process language egocentrically has changed our thinking about the role of the principle of optimal design in language use, and has prompted us to conduct experiments that investigate the mental processes that underlie how people convey and understand intentions (Keysar, 1998). Given that the principle applies more directly to interlocutors than to readers, we focused our investigations on the way actual speakers and addressees use language. We have discovered that under certain conditions, both speakers and addressees systematically disregard the principle of optimal design.⁵

Speaking

When people speak, they first formulate a message, then put it into linguistic form, and eventually create a plan for articulation (e.g., Levelt, 1989). People monitor this production process at different points and revise their plans if needed. How does the production process allow a speaker to design an utterance for the benefit of a specific addressee? We (Horton & Keysar, 1996) have considered two possible models. One model is that a speaker follows the principle of optimal design from the outset, planning a message that takes into account the perspective of the addressee. A second model was motivated by Dell and Brown's (1991) suggestion that an audience-targeted design is more of an afterthought. Under this monitoring-and-adjustment model, speakers plan their utterances egocentrically, without regard to their addressees' perspectives. But speakers are not egocentric all the way through; instead, they monitor their plans and attempt to detect those that rely on information that

is unavailable to the addressee. When such an egocentric plan is detected, it is then revised as needed.

To test these models, we asked participants to describe simple figures to addressees. The figures were presented in the context of other figures. For example, the participants described a circle in the context of a larger circle. We informed some participants that the addressees shared those context figures, whereas other participants were told that these figures could not be seen by the addressees (i.e., the figures were privileged to the speakers). The crucial measure was the extent to which speakers' descriptions relied on context, which was indicated by their use of adjectives. For example, if they described the circle as a "small" circle, it suggested that they relied on the larger context figure.

The results were straightforward. First, speakers relied on context more often when it was shared than when it was privileged to them. This result is predicted by both models, and suggests that the final descriptions were sensitive to the perspective of the addressees. The critical test came when we asked the speakers to perform under time constraints (i.e., to start talking 1.5 s after they saw each figure). Under time pressure, their descriptions were just as likely to rely on privileged as on shared context. This is precisely what the monitoring-and-adjustment model predicts: Under pressure, speakers do not have sufficient time and resources to monitor and correct their utterances, and consequently they fall back on their initial plans. These plans are egocentric in the sense that they are not sensitive to the common ground with addressees: The speakers rely on their own context regardless of whether it is part of common ground.

Common ground appears to play a role in speaking. Several

studies have demonstrated that participants seem to tailor their utterances to fit the characteristics of different addressees (e.g., Fussell & Krauss, 1989; Isaacs & Clark, 1987; Krauss, 1987). Yet our findings suggest that utterances are not as customized as one might believe. Instead, speakers design utterances egocentrically; some of these plans happen to be appropriate for the specific addressee, but others are not. What speakers do, then, is monitor and update those plans that do not fit the addressee's perspective. Consequently, it looks like speakers' utterances are pre-designed for their addressees, but they need not be. Consider the following analogy: Imagine your friend wearing a new suit. It fits him so well it appears custom-made. However, it is also possible that it is a premade suit that he altered slightly to fit him. The observation that the suit fits is not sufficient to distinguish between these two alternatives. Likewise, an utterance that seems to be custom-designed need not be. It is this distinction between process and outcome that provides insight into the egocentric nature of speaking.

Understanding

Just as speakers plan their utterances egocentrically, addressees interpret utterances from their own egocentric perspectives. We have found that addressees do not use their common ground with the speaker, unless their egocentric interpretations lead them to errors.

In one experiment, we showed that such egocentric interpretations could even lead addressees to conclude that a speaker referred to their private thoughts (Keysar, Barr, Balin, & Paek, 1998). The experiment was analogous to the following situation: Suppose that Boris, who lives in Chicago, is thinking of calling his father in Eu-

rope, but then realizes that his father is probably asleep because of the time difference. At that moment, his wife asks him, "Is he asleep?" referring to their son. Our model predicts that Boris would interpret her question egocentrically, understanding the pronoun "he" to refer to his father, because the thought of his father provides a handy referent. But given that he knows that his wife has no access to his private thoughts, Boris would adjust to her perspective and answer, "No, he is playing downstairs."

We created a parallel situation in an experiment in which we gave participants two sentences that described simple events involving male or female actors. One sentence was related to information shared with an interlocutor; the other sentence was given to participants as private information, analogous to Boris's thought about his sleeping father. The genders of the actors in the two sentences were either the same or different. On each trial, the interlocutor asked a question about the action described in the shared sentence (e.g., "Is he asleep?"), and we measured the time it took participants to answer. We found that they took longer to respond and made more errors when the pronoun in the question matched the gender of the actor in the private sentence than when it did not. These results suggest that an egocentric interpretation caused interference and required a perspective adjustment.

Because we wanted to see if our model would hold even when we stacked the deck against it, we then looked for situations in which it is patently clear what is in common ground and what is not. We turned to what Clark and Marshall (1981) identified as the strongest evidence for common ground: physical or perceptual co-presence. When an entity is physically co-present for a speaker and an addressee, they

have good reason to believe that the entity is in their common ground. Perhaps when such evidence is provided, addressees do not interpret utterances egocentrically, but instead use the common perspective and avoid egocentric errors.

To test the model under these conditions, we combined a traditional referential communication setting (e.g., Glucksberg, Krauss, & Weisberg, 1966) with a technique of following eye movements to measure comprehension (Tanenhaus, Spivey-Knowlton, Eberhard, & Sedivy, 1995). Participants played a communication game with arrays of objects such as those in Figure 1 (Keysar, Barr, Balin, & Brauner, 1996). Two people played each game, sitting on either side of the array of objects. The director (who was actually a confederate) instructed the other player, the matcher, to reorganize the objects. In this experiment, most objects were co-present for the director and the matcher, but certain objects were occluded from the director's view. For example, in Figure 1, the block on the bottom row could not be seen by the director and was therefore not part of the common ground. The critical test was when the director said, "Now put the bottom block below the apple." Clearly, the director was referring to the second block from the top, but if matchers interpret utterances egocentrically, then they would consider the block on the bottom row as a possible referent. By tracking the matchers' eye movements, we were able to tell which object they were considering at each point in time.

The data were very clear. For the array of objects depicted in Figure 1, eye movements indicated that the first block that matchers appeared to consider as a referent was the occluded block, suggesting an egocentric interpretation. This interpretation error caused a delay

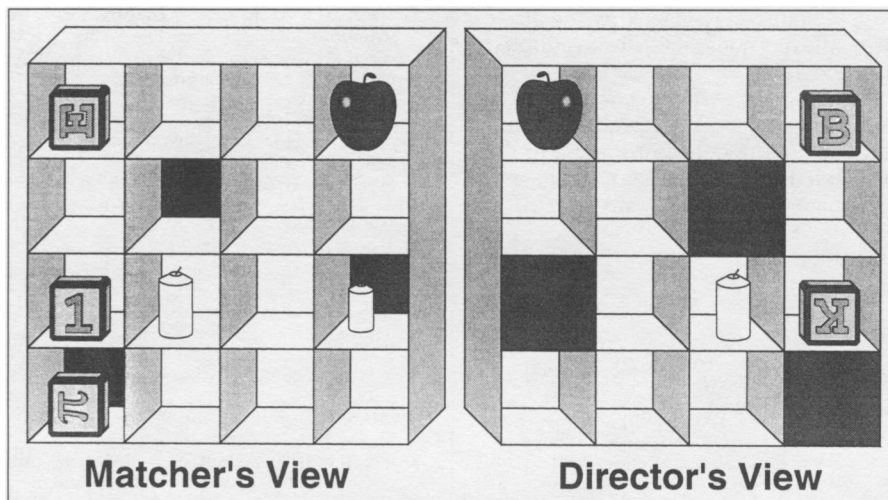


Fig. 1. The array of objects from the director's and the matcher's perspectives. The critical instructions were, "Put the bottom block below the apple." The director was referring to the second block from the top, but the question of interest was whether the matcher would consider the lower block as the referent even though that block was occluded from the director's perspective (Keysar, Barr, Balin, & Brauner, 1996).

in the identification of the intended block, as indicated by the time it took the matcher to initially look at, or fixate, the intended block. To evaluate this delay, we compared the time it took to identify the intended block in this experimental condition and in a control condition in which the occluded object was not a block (see Fig. 2). The presence of an occluded block delayed both the initial fixation on the intended block and the final fixation on that block immediately before matchers reached for it. The delay in final fixation on the in-

tended object suggests a slowdown in the decision to select that object. The egocentric interpretation was so compelling that matchers occasionally reached for the occluded block, sometimes even picking it up, but they eventually adjusted and moved the intended block instead. These data demonstrate that even when addressees have strong physical evidence about what the speaker knows and does not know, they still interpret utterances egocentrically and rely on common ground only to adjust if they make an error.

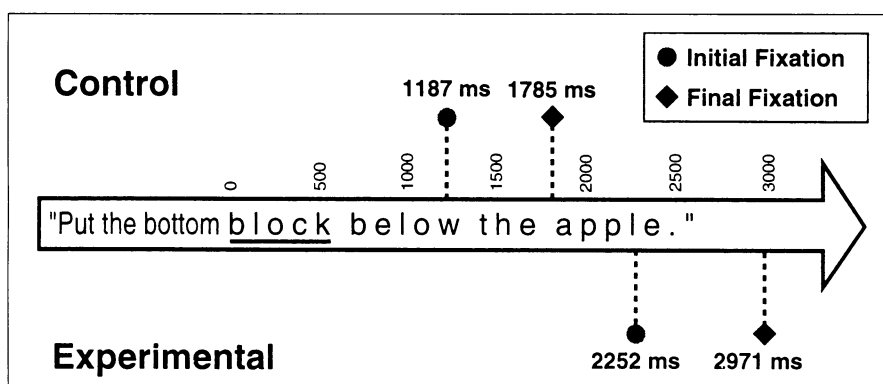


Fig. 2. Timeline for the matcher's initial and final eye fixations on the bottom block in the task illustrated in Figure 1 (experimental condition) and in a control condition in which the task was the same but the object in the occluded slot was not a block (Keysar, Barr, Balin, & Brauner, 1996). The final eye fixation is an indicator of when the decision was made to move the block.

CONCLUSION

Our investigations have led us to the surprising conclusion that, like young children, adults process language egocentrically; however, adults may have developed more effective strategies of adjustment (Keysar, 1993). Error patterns that would be considered random under the standard theory can now be understood as symptomatic of how the language system operates. Speakers and addressees make egocentric errors in production and comprehension when they do not fully adjust to the other's perspective.

One might wonder why the language-processing system is designed in such a counterintuitive way. Instead of an error-prone egocentric process, why not have a system that follows the principle of optimal design from the outset? The answer might have to do with the information processing limitations of the mind. As Simon (1982) argued, the mind "satisfices": It solves problems heuristically using strategies that are not error proof but are typically cost-efficient (Tversky & Kahneman, 1974). It seems that people solve the problem of producing and understanding language in the same way, applying an easy egocentric process that typically succeeds but occasionally leads to an error.

Our findings give rise to a host of new questions, including these: How, and at what point, do language users detect an egocentric error? Are adjustment strategies sensitive to changing social conditions? Do language users "relax" their perspective monitoring with a highly familiar interlocutor? By investigating the mental processes that underlie pragmatic phenomena, researchers will be able to provide answers to such questions and better understand how people use language to convey and understand intentions.

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Notes

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2. The two conditions we describe were originally designed as control conditions in a pilot study. Because of the surprising result, the experiments were redesigned to explore the phenomenon reported in Keysar (1994).

3. This phenomenon is probably a special case of construal (Ross, 1990): Once people know the motivation behind an ambiguous behavior, they perceive that behavior as less ambiguous and more diagnostic of the actual motivation. Similarly, people might have construed David's ambiguous utterance in terms of his intention and consequently perceived the utterance as less ambiguous than it actually was.

4. Sperber and Wilson (1982) argued against the role of mutual knowl-

edge in language use, but the basic principle has nonetheless been adopted in the field.

5. Earlier experiments on the role of common ground in comprehension did not allow a direct test of the use of the principle of optimal design because of an inherent confound (as discussed in Keysar, 1997).

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Psycholegal Research on Jury Damage Awards

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What happens behind the closed doors of a jury deliberation room? Are jurors carefully sifting through the evidence, noting inconsistencies and appreciating the complexities of trial testimony? Are they getting it right? Or, alternatively, in attempting to make sense of com-

plicated legal concepts, unfamiliar terminology, and disputed facts, are they simply getting it wrong?

Everyone can think of instances in which the jury seemed to do the right thing. (Consider, e.g., the muted public reaction to the jury's pronouncement that Timothy

McVeigh should die for the murders related to the April 1995 bombing of the Murrah Federal Building in Oklahoma City.) Everyone can also think of situations

Recommended Reading

- Greene, E. (1989). (See References)
- MacCoun, R. (1993). Inside the black box: What empirical research tells us about decisionmaking by civil juries. In R. Litan (Ed.), *Verdict: Assessing the civil jury system* (pp. 137–180). Washington, DC: Brookings Institution.
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