Production-comprehension asymmetries

Fernanda Ferreira

Department of Psychology, Michigan State University, East Lansing, MI 48824-1117. **fernanda@eyelab.msu.edu**
http://eyelab.msu.edu/people/ferreira/fernanda.html

Abstract: Pickering & Garrod's (P&G's) mechanistic theory of dialogue is a major advance for psycholinguistics. But the commitment to representational parity in production and comprehension is problematic. Recent research suggests that speakers frequently produce a structure that listeners find ungrammatical and have trouble understanding. If the grammars of the two systems are different, then the assumption of representational parity must be relaxed.

The field of psycholinguistics has needed precisely what Pickering & Garrod (P&G) provide: a mechanistic theory of dialogue. P&G's core idea is that priming is more than just a tool cognitive psychologists use to learn about the structure or processing characteristics of some cognitive system; in dialogue, priming is itself a mechanism for producing alignment between interlocutors, and from it ultimately emerges the common ground that is critical for successful communication. But their views seem to commit them to the idea that the production and comprehension systems use the same representations, and this is one problematic aspect of their approach.

If the same representations are used for comprehension and production, speakers should not make use of a syntactic construction that comprehenders find unacceptable and hard to understand. Yet recent work from our laboratory demonstrates that they do (Ferreira & Swets 2003). We invented a paradigm for eliciting sentences such as "This is a dog that I don't know what it eats," which is ungrammatical in English. In the experiments, people first see a picture of a cat (for example) combined with a short verbal label such as "eats fish." Then they see a picture of another cat with a minimally different label – "eats chicken," for example. The next picture in the series consists of a cat and a question mark in the same spot where the labels occurred in the other examples. About 70% to 75% of the time, speakers will describe this third picture with a sentence containing a relative clause that violates island constraints (Chomsky 1973) and a resumptive pronoun in place of the illegal trace (Creswell 2002). (Henceforth we refer to these as IRPs: Island Resumptive Pronoun sentences.) This experiment, then, provided evidence that speakers can reliably be induced to produce a structure that is ungrammatical. But perhaps this result is not surprising, as such sentences occur fairly often in natural situations (Prince 1990).

More interesting were the results from a follow-up study in which speakers performed the same task but under time pressure. Some views of the IRP structure assume that these forms result from a failure to plan adequately. The idea is that speakers paint themselves into a syntactic corner and at the last moment try to salvage the utterance by inserting the resumptive pronoun. Yet, we observed that this form was no more likely to occur when speakers were under time pressure, and alternate, more acceptable forms were actually more frequent (e.g., "This is a dog and I don't know what it eats," or "This dog, I don't know what it eats"). It appears, then, that the production system plans this form and considers it part of its expressive repertoire. After all, the meaning that the utterance attempts to convey is not rare, and the IRP form is really the only way to verbalize it succinctly (neither of the paraphrases provided here as examples of alternate forms are as semantically accurate).

Now, the interesting question is: How does the comprehension system feel about these same structures? We knew from the start that they are generally viewed as ungrammatical (McDaniel & Cowart 1999). But, to be certain, we gave our listener-subjects written versions of the sentences that the subjects from the production experiments had uttered. Because this form is generally encountered only in spoken language and therefore is perhaps more easily processed with appropriate prosody, we conducted an auditory version of the same grammaticality judgment task. We obtained the same results. We were not shocked at these findings, though, because our speaker-subjects often giggled nervously after producing IRPs, betraying their awareness that the utterances were off in some way. We then conducted two more comprehension studies, one showing that comprehenders do not answer questions about IRPs as accurately as questions about matched controls (e.g., "This is a dog that doesn't know what it eats"), and the other demonstrating that IRPs elicited more regressive eye movements, launched from the clause containing the resumptive pronoun and aimed at the head noun of the relative clause.

It appears that the production system makes reliable use of a structure that the comprehension system views as ungrammatical and has a hard time understanding. We believe these results suggest a disconnect between the two systems. Now, P&G might respond that this asymmetry could be because of processing differences rather than representational nonparity. There are three problems with this argument. First, P&G invoked parity to explain how interlocutors are able to complete each other's utterances; but certainly, if there are forms that only one system likes, then these predictive feats will not be possible. Second, it is hard to imagine that hearing an IRP sentence could prime a speaker to produce one, given that the interpretive system balks at the form. And third, and most important, the syntactic representations used by the two systems appear to be nonoverlapping: The IRP form is part of the grammar that the production system uses, but it is not available to the comprehension system.

The authors might respond that these studies were obtained in production and comprehension experiments conducted entirely independently. Perhaps if these structures occurred as part of an interactive dialogue, they would either fail to emerge (which is unlikely, given that they are attested in natural conversations) or they would be treated as licit and understood by listeners. This tack is not unreasonable, but it does make me uncomfortable and it should make the authors a bit nervous as well. For if we accept this line of argument, then all of the findings from basic psycholinguistic experiments that have been done in monologue situations are suspect. Moreover, this response would undermine the authors' fundamental goal, which is to provide a mechanistic theory of dialogue – a theory that is informed by decades of systematic research which has isolated the mechanisms of language processing through experiments that could only be done in monologue contexts. As a result, the authors' theory would become less attractive, because one major reason for its appeal is that it brings together two important traditions in linguistics. Better to question the assumption of representational parity than to cast doubt on three decades of significant results, many of which critically informed the authors' approach.

Visual copresence and conversational coordination

Susan R. Fussell and Robert E. Kraut

Human-Computer Interaction Institute, Carnegie Mellon University, Pittsburgh, PA 15213. **susan.fussell@cmu.edu** **robert.kraut@cmu.edu**
http://www.andrew.cmu.edu/~sfussell/Susan_Fussell.html
http://www-2.cs.cmu.edu/~kraut/>

Abstract: Pickering & Garrod's (P&G's) theory of dialogue production cannot completely explain recent data showing that when interactants in referential communication tasks have different views of a physical space, they accommodate their language to their partner's view rather than mimicking their partner's expressions. Instead, these data are consistent with the hypothesis that interactants are taking the perspective of their conversational partners.

We applaud Pickering & Garrod's (P&G's) attempt to explain one of the most basic features of human language – its dialogue struc-

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