

Pragmatics in understanding what is said

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Abstract

A central claim in cognitive science is that speakers often say things which underdetermine what they imply by their use of utterances in context. For example, in uttering *Jane has three children* a speaker might only say that Jane has at least three children and may have more than three, but the speaker's utterance implicates that Jane has exactly three children. Many scholars following Grice have argued from such observations that pragmatics plays only a small part in determining what speakers say, as opposed to what they conversationally imply or implicate. We examined people's intuitions about the distinction between what speakers say, or what is said, and what they implicate by different indicative utterances, such as *Jane has three children*. The data from four experiments demonstrate that people do not equate a minimal meaning (i.e., Jane has at least three children and may have more than three) with what a speaker says, but assume that enriched pragmatics plays a significant role in determining what is said (i.e., Jane has exactly three children). People further recognize a distinction between what speakers say, or what is said, and what speakers implicate in particular contexts (e.g., Jane is married). These data lend support to theories of utterance interpretation in cognitive science that pragmatics strongly influences people's understanding of what speakers both say and communicate.

1. Introduction

A fundamental assumption in philosophy, linguistics, and psychology is that what speakers say often underdetermines what they mean to communicate by their utterances. Consider the following brief exchange (Grice, 1975):

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Ann: *Smith doesn't seem to have a girlfriend these days.*

Bob: *He's been paying a lot of visits to New York lately.*

Grice argued with this example that what Bob said only expresses part of what he meant by his utterance. Thus, although Bob simply stated a fact about Smith's recent visits to New York, Bob likely intended for Ann to understand that Smith has, or may have, a girlfriend in New York. The inference that Smith may have a girlfriend in New York is derived from certain general principles or maxims of conversation that participants in talk-exchange are mutually expected to observe (Grice, 1975, 1978, 1989). Among these are the expectation that speakers are to be informative, truthful, relevant, and clear in what they say. When an utterance appears to violate any of these maxims, as Bob appears to do in the above exchange, listeners are expected to derive an appropriate *conversational implicature* as to what the speaker must have intended to communicate in context given the assumption that he or she is trying to be cooperative. Grice's analysis assumes, then, two levels of communicated propositional content: (a) the level of "what is said," that is, the proposition or thought explicitly expressed, closely relevant to the linguistic (semantic) content and usually equated with the truth-evaluated content of the utterance; and (b) the level of "what is implicated," that is, the further propositions or thoughts intended by the speaker which depend on pragmatic factors for their recovery.

In his *William James Lectures*, Grice (Grice, 1975, 1978, 1989) referred to highly context-dependent implicatures, such as noted in Ann and Bob's exchange, as *particularized* conversational implicatures. On the other hand, conversational implicatures that are normally conveyed regardless of the context were referred to by Grice as *generalized* conversational implicatures. Consider the following examples, where each (a) sentence presents what the speaker uttered, and each (b) sentence reflects what is standardly conveyed or implicated by a speaker.

1. (a) *She gave him her key and he opened the door.*
(b) *She gave him her key and then he opened the door.*
2. (a) *Jane has three children.*
(b) *Jane has exactly three children.*
3. (a) *It took us some time to get there.*
(b) *It took us a great deal of time to get there.*

Grice claimed that our understanding of what is meant in each of these (a) examples is best explained by the calculable process of conversational implicature rather than by postulating a large number of distinct, but related, senses for words such as *and* and *some*. For instance, understanding that *It took us some time to get there* implies that "It took us a long time to get to some location" requires listeners to go beyond what is said by appealing to the cooperative principle, the

context in which this utterance was spoken, and certain bits of background knowledge, all of which must be mutually known to be shared by speaker and listener (Levinson, 1983).¹

Grice's ideas on conversational implicature have had an enormous influence on linguistic, philosophical, and psychological theories of conveyed meaning. Most scholars, following Grice, have suggested that any meaning not derived by linguistic decoding must be explained via the application of rich pragmatic knowledge (Atlas and Levinson, 1981; Gazdar, 1979; Horn, 1985, 1989; Levinson, 1983, 1987a,b).² Nearly all theorists, including Grice, recognize that certain contextual information relevant to resolving ambiguity and fixing indexical reference must play some role in determining what speakers say. Nevertheless, the long-standing assumption has been that understanding what speakers say, or what is said, refers only to the truth-conditional content of an utterance (its conventional or literal meaning), which is only a small part of speakers' intended, communicative meanings (Levinson, 1987a,b).

In recent years, however, several linguists and philosophers have cogently argued that the Gricean view ignores the fact that essentially the same sorts of inferential processes used to determine conversational implicatures also enter into determining what is said (Carston, 1988, 1993; Recanati, 1989, 1993; Sperber and Wilson, 1986; Wilson and Sperber, 1993). Consider typical utterances of sentences like (a) *You're not going to die* and (b) *I haven't eaten*. In each case, at least once the indexical references and the time of the utterances are fixed, the literal meaning of the sentence determines a definite proposition, with a definite truth condition, which can be expressed as "The addressee of the utterance in (a) is immortal" and "The utterer of (b) has not eaten prior to the time of the utterance." Each of these statements reflects the minimal proposition expressed by the (a) and (b) sentences (Recanati, 1989). However, a speaker of *I haven't eaten* or *You're not going to die* is likely to be communicating not a minimal proposition, but some expansion of it, a meaning that could be made explicit with the insertion of an appropriate phrase,

¹ Conversational implicatures are different, therefore, from *logical implications* or *entailments* which refer to inferences that are based on the logical or semantic content of sentences. Conversational implicatures also differ from *conventional implicatures*, inferences that result from understanding the conventional meanings of the words in a sentence. According to Grice (1975), conversational implicatures also have several important characteristics: they should be nonconventional, calculable, nondetachable, and cancellable. Many linguists have considered whether these characteristics of conversational implicatures can be used as tests or rules of thumb to enable us to distinguish between conventional and nonconventional uses of expressions (Cohen, 1971; Karttunen and Peters, 1979; Levinson, 1983; Nunberg, 1981; Sadock, 1978). Although some scholars remain optimistic that some set of formal rules may provide definite linguistic tests for conversational implicatures (Levinson, 1983), most linguists have criticized Grice's criteria as being either too vacuous or simply wrong (Nunberg, 1981; Sadock, 1978; Sperber and Wilson, 1986).

² These scholars have proposed within Neo-Gricean pragmatic theory different types of mechanisms to account for several problematic aspects of how people draw both particularized and generalized conversational implicatures.

such as *dinner today* to form *I haven't eaten dinner today* or *from this wound* to form *You're not going to die from this wound*.

Sperber and Wilson (1986), Wilson and Sperber (1993) and Carston (Carston, 1988, 1993) regard these expansions as part of the explicit contents of utterances, which they call *explicatures*, as they are not implicatures in the traditional Gricean sense. To give another example, consider *The park is some distance from home* (Carston, 1988). Listeners could infer a complete, truth-evaluable proposition for this utterance solely on the basis of its semantic content and reference assignment (e.g., the park and the home are not contiguous). Yet listeners are quite likely to recover an expanded proposition, perhaps based on the assumption that the speaker has something relevant to say and is not simply saying something trivially true (i.e., “The park is farther from my home than you might think”). Examples like this do not fit Grice’s conception of what is said, inasmuch as they are not “closely related to the conventional meaning of the ... sentence ... uttered” (Grice, 1975, p. 44). The gap between linguistic meaning and the proposition expressed by utterances such as *The park is some distance from home* cannot be closed just by reference assignment and disambiguation as Grice and others have argued. Grice clearly believed that there is a difference between the conventional meanings of words and what is said by uttering the words. Yet the contextual information needed to assign referents and disambiguate words in utterances severely underdetermines what is said. It appears that enriched pragmatic information similar to that used in inferring conversational implicatures may very well come into play as part of how people determine what speakers say, or what is said.

To what extent do people recognize that pragmatics influences their understanding of what is said? There has been significant debate among some linguists and philosophers over whether people can actually distinguish between what speakers say and what they implicate (cf. Bach, 1994a,b; Carston, 1988; Recanati, 1989, 1993). Some hypotheses assume that people should not find it easy to distinguish between what a speaker says and what he or she implicates. Grice’s *implicature hypothesis*, for example, suggests that only some aspects of our understanding of what a speaker says are influenced by pragmatics (i.e., those necessary for evaluating a proposition’s truth value). Under this view, the proposition expressed by what is said by *I have had breakfast* need not be consciously accessible. What is consciously accessible, according to this hypothesis, is only “what is communicated” (i.e., the result of combining the proposition literally expressed with the various extra elements such as the conversational implicatures).

Another view, the *standardized nonliterality hypothesis* (Bach, 1987, 1994a,b), suggests that non-literal uses of sentences like *I have had breakfast* are the standard ones which make most pragmatic interpretations of such sentences examples of *standardized nonliterality*. When a speaker says *I have had breakfast*, he or she is not consciously aware of having stated anything like “I have had breakfast at least once before in my lifetime” because this utterance is standardly used to convey the idea that they have eaten breakfast on the day of the utterance. Our understanding of what is implicated by *I have had breakfast* parallels what occurs in cases of *standardized indirection* when an indirect speech act is

standardly performed by means of a certain type of sentence (Bach and Harnish, 1979). For example, when a speaker utters *Can you pass the salt?* in some discourse situation, he or she is often not aware of the direct, literal speech act performed (e.g., *Is it possible for you to pass the salt?*). Most generally, the standard nonliterality view suggests that ordinary speakers would not find it easy to distinguish between what a person says and what he or she implicates.

Both the implicature and standard nonliterality hypotheses seem counterintuitive in that we often believe that some distinction exists between what speakers say and what they implicate in context. These beliefs are not tacit, but seem very much a part of our conscious awareness. Two other hypotheses propose that people can distinguish between what is said and what is implicated even though both of these are, to different degrees, pragmatically determined. The *independence hypothesis* (Carston, 1988) states that “conversational implicatures are functionally independent of what is said; this means in particular that they do not entail, and are not entailed by, what is said. When an alleged implicature does not meet this condition, it must be considered as part of what is said” (Recanati, 1989, p. 316, in discussing Carston, 1988). Consider the utterance *I have had breakfast*. The independence hypothesis proposes that if I had breakfast on the day of the utterance (the alleged implicature), then it follows or entails that I have had breakfast at least once in my life (what is said by the utterance). Therefore, the interpretation that states that I have had breakfast on the day of the utterance, while being pragmatically determined, must be considered part of what is said and not considered to be a conversational implicature.

The *availability hypothesis* states: “In deciding whether a pragmatically determined aspect of utterance meaning is part of what is said, that is, in making a decision concerning what is said, we should always try to preserve our pre-theoretic intuitions on the matter” (Recanati, 1989, p. 310). These intuitions should be available or accessible to the unsophisticated speaker–hearer. Unlike sentence meaning, which is mostly unavailable to consciousness, both what is said and what is conversationally implicated are consciously available as distinct. For example, imagine a situation in which John visits Lisa one morning and she says *Would you like some pancakes?* to which John replies *I have had breakfast*. According to the availability hypothesis, ordinary speakers should be quite aware of the said meaning for *I have had breakfast*, namely that John is saying that he has eaten already on the day of the utterance, as well as what John conversationally implicates, namely that he does not wish to eat the pancakes that Lisa is offering.

Both the independence and availability hypotheses, unlike the implicature and standard nonliterality hypotheses, assume that people use enriched pragmatic knowledge (i.e., going beyond disambiguation and reference assignment) to determine what is said. Both hypotheses also assume that speakers consciously recognize a difference between their understanding of what is said and what is implicated. Do these linguistic and philosophical proposals have any bearing, though, on how ordinary people view the pragmatics of what is said? Surprisingly, there is little psycholinguistic research on adults’ abilities to distinguish between

what speakers say and what they implicate. Although considerable effort has been devoted to examining how people understand utterances whose conveyed meanings differ from their minimal, literal meanings (Gibbs, 1994), few studies have explicitly tested whether people consciously recognize an enriched said interpretation as part of their understanding of what speakers implicate (see Clark, 1979; Clark and Schunk, 1980).

The aim of the present experiments was to show that pragmatics plays a critical role in how ordinary people determine what speakers say. We specifically examined if people distinguished what speakers say, or what is said, from what speakers implicate and to see if people viewed speakers' said meanings as being determined by enriched pragmatic knowledge (i.e., pragmatic information beyond that needed to determine lexical disambiguation and reference assignment). Our studies are unique because they focus on indicative utterances that Grice referred to as generalized implicatures, such as when a speaker says *Jane has three children* and conversationally implies that "Jane has exactly three children." Dozens of experimental studies have examined how people understand conveyed meanings in context-dependent situations that give rise to particularized implicatures, such as those associated with the comprehension of figurative language (Gibbs, 1994). In contrast, there have been no studies that examine how people determine what speakers say as opposed to what they implicate by their utterances. Generalized implicatures such as those derived from understanding expressions like *Jane has three children* present a strong test for showing the importance of pragmatics in understanding what speakers say precisely because our interpretation for what speakers imply with these expressions seems so context-independent.³

EXPERIMENT 1

Experiment 1 examined the meanings that people inferred when asked to determine what a speaker said as opposed to what he or she implicated. We presented participants with five types of indicative sentences traditionally assumed when uttered by speakers to convey different kinds of generalized conversational implicatures. Each expression was shown with two possible interpretations of what its speaker might have "said." For example, participants read the sentence *Jane has three children* along with two possible "said" interpretations, one of which represented a speaker's minimal meaning (e.g., *Jane has at least three children but may have more than three*), while the other represented a speaker's enriched intention (e.g., *Jane has exactly three children*). The participants' task was to select which of these interpretations best captured what a speaker said by *Jane has three children*. If people use significant pragmatic information to determine the said meanings of speakers' utterances, they should choose enriched interpretations more often than minimal ones.

³ Generalized conversational implicatures have been the focal point of much work in pragmatic theory because they have a great deal of regular, cross-linguistic generality, and interact clearly with linguistic structure and meaning (see Gazdar, 1979; Horn, 1989; Levinson, 1987a,b).

2. Method

2.1. Subjects

Thirty undergraduate students at the University of California, Santa Cruz participated as subjects to fulfill an introductory course requirement. All the participants were native English speakers.

2.2. Stimuli and design

The stimuli consisted of five groups of utterances with five expressions in each group. The first group was characterized by the specification of a certain number of objects that a certain person owns (*cardinal* utterances), such as *Brian has exactly three cats*. Speakers' utterances in this group are assumed to implicate, according to the Gricean account, that the person in question has exactly the number of objects specified (i.e., that Brian has three cats). The second group of expressions was characterized by the use of the word *a* before the noun so that possession was not specified (*possession* utterances), such as *Robert broke a finger yesterday*. Speakers' utterances in this group are traditionally assumed to implicate that the object was possessed or owned by the subject of the sentence (i.e., that Robert broke his own finger). The third group of expressions was characterized by the use of the words *everybody* or *nobody* as the subject of the sentence (*scalar* utterances), such as *Everybody went to San Francisco*. Speakers' utterances in this group are traditionally assumed to implicate a contextually specified meaning of terms like *everyone* or *nobody* (i.e., that all the people in some group that we mutually recognize went to San Francisco). The fourth group of expressions was characterized by a phrase referring to time or distance in a nonspecific manner (*time–distance* utterances), such as *It will take us some time to get there*. Speakers' utterances in this group are traditionally assumed to implicate something more specific about the time or distance mentioned in the sentence (i.e., that it will take us a long time to get there). The final group of expressions was characterized by combination of two phrases by the word *and* (*temporal relation* utterances), such as *Amy bought a new dress and she went out dancing*. Speakers' utterances in this group are traditionally assumed to convey a temporal relation between the two events mentioned (i.e., that Amy bought a new dress and then she went dancing). Appendix A presents the complete list of 25 sentences used in this study.

Each of the 25 sentences was presented along with paraphrases that represented both a speaker's minimal and enriched intentions. For example, given the expression *Brian has three cats* a speaker's minimal intention would be "Brian has at least three cats but may have more," while the speaker's enriched intention would be "Brian has exactly three cats." The sentences were presented in a random order in a booklet. Appendix B presents an example of the two possible interpretations for each of the five groups of speakers' expressions.

2.3. Procedure

Each participant was given a booklet which contained the instructions and the experimental materials. The participants were told that “This experiment examines your understanding of the meanings of what speakers say when uttering certain sentences. Presented below is a list of expressions, each of which is followed by two different paraphrases. We want you to determine what speakers might have *said* when uttering these sentences. Your task, then, is simply to read each expression and its two alternative paraphrases and circle the letter next to the paraphrase that best reflected what each sentence said.” They were instructed to read each expression and to choose which of the two interpretations presented below best captured what the speaker “said” by each expression. The task took 15 minutes to complete.

3. Results and discussion

Table 1 presents the proportion of participants who chose the enriched version of what speakers said for each type of sentence. The overall standard deviation for these data was .30.

Analyses of variance were conducted both when participants were the random factor ($F1$) and when items were the random variable ($F2$). These analyses revealed a significant effect of sentence type, $F1(4, 116) = 11.56, p < .001$; $F2(4, 24) = 2.39, p < .10$. The proportion of people who chose the enriched paraphrases of what was said for each type of sentence, except for possession sentences, was significantly above the chance level of 50%, with $p < .05$ for each comparison as determined by separate z -tests ($z = 4.11, 5.00, 4.70, \text{ and } 3.78$ for the cardinal, scalar, time–distance, and temporal relation sentences, respectively). It is not clear why participants did not recognize an enriched meaning for the possession sentences. One possibility is that possession sentences like *Robert broke a finger last night* actually receive their enriched interpretations (e.g., “Robert broke his

Table 1
Proportion of enriched choices in Experiments 1 and 2

	Experiment 1	Experiment 2
Cardinal	.87	.78
Possession	.57	.59
Scalar	.95	.91
Time–distance	.89	.81
Temporal relation	.94	.90
Means	.84	.80

own finger last night”) via a process of conversational implicature just in the manner suggested by the implicature hypothesis.⁴

The results of this study suggest that people believe significant pragmatic information plays a major role in determining what speakers say. Because enriched paraphrases of what speakers say would ordinarily be classified as conversational implicatures, these data raise difficulties for the implicature hypothesis. These findings also suggest that for a majority of the expressions studied, people consistently recognized that speakers convey a distinct “said” meaning by their utterances.

EXPERIMENT 2

One alternative explanation for the data in Experiment 1 is that the participants tacitly accessed the minimal meanings of speakers’ utterances, but were not consciously aware of this aspect of meaning in making their “said” judgments. Although some philosophers and linguists, who personally have fairly sophisticated intuitions about matters of meaning, contend that speakers’ ordinary said meanings when uttering expressions such as *Jane has three children* or *I have had breakfast*, are their minimal ones, undergraduate students who participated in Experiment 1 may be insensitive to the distinction between what is said and what is implicated. Bach (1994b) suggests that “people made cognizant of the distinction find that their intuitions change in the direction of Grice’s requirement that anything that does not correspond to some element or feature of the uttered sentence is not part of what is said.” The purpose of Experiment 2 was to investigate whether it was possible to train people to recognize the minimal meanings of what speakers say, which are traditionally assumed to convey generalized conversational implicatures.

4. Method

4.1. Subjects

Twenty-four UC Santa Cruz undergraduate students participated as subjects. All the participants were native English speakers.

⁴ Two reviewers of this article correctly noted that the said meaning of several of the possession expressions actually convey non-possession (e.g., *I saw Sally walking a dog yesterday*) similar to Grice’s example of *I saw Bill with a woman yesterday* which is said to implicate that the woman was not Bill’s wife. This variability in the stimuli for the possession expressions could easily account for the failure to get the expected results for this group of sentences. Note that we obtained the expected results in Experiment 3 when the same sentences were presented in context.

4.2. Stimuli and design

The stimuli and design for this study were identical to those employed in Experiment 1. In addition, 25 similar sentences to those used as test sentences were created for the training session. With each sentence, a minimal paraphrase of what was “said” was presented.

4.3. Procedure

The procedure had two parts. Participants were first told about the difference between what speakers say and what they implicated using several examples. They were also told that linguists and philosophers who study meaning in language often argue that what a speaker says reflects his or her minimal meaning (e.g., *The door is open* says that “There is one door in the world and it is open” or *I have had lunch* says that “I have had lunch at least once before in my lifetime.”). Following this, 25 sentences (5 each for cardinal, possession, scalar, time–distance, and temporal relation) were presented along with their minimal “said” meanings. The participants were told to carefully read over the 25 expressions and their “said” paraphrases. Their task here was simply to recognize the possibility that speakers might convey minimal meanings as part of what they say. Afterwards, the participants were given the same set of sentences used as stimuli in Experiment 1 along with the respective minimal and enriched paraphrases of what speakers uttered. The participants were explicitly instructed to choose the paraphrase that best reflected what *they* thought represented the speaker’s “said” meaning, apart from whatever they were shown earlier about what various linguists and philosophers have often claimed about “said” meaning. The entire task took about 30 minutes to complete.

5. Results and discussion

Table 1 presents the proportion of participants in Experiment 2 who chose the enriched paraphrases for each type of sentence. The overall standard deviation for these data was .32. Analyses of variance on these data revealed a significant effect of sentence type, $F1(4, 116) = 9.45$, $p < .01$; $F2(4, 24) = 3.44$, $p < .05$. The proportion of participants who chose the enriched paraphrases of what was said was significantly different from chance for each type of sentence, except for possession, with $p < .05$ for each comparison as determined by separate z -tests ($z = 2.80, 4.12, 3.31$, and 4.02 for the cardinal, scalar, time–distance, and temporal relation sentences, respectively).

These data show that even when people are specifically alerted to the possible minimal meanings of what speakers say, they still believe that the enriched paraphrases best capture what is said by speakers. It is clear that people’s intuitions about the meanings of what is said do not easily change in the direction

of Grice's view that enriched interpretations are primarily part of what speakers implicate.

EXPERIMENT 3

A different explanation for the findings of Experiments 1 and 2 is that the participants were biased to select the enriched meanings for what is said given the two pragmatic choices available. This possibility suggests that people are not necessarily using enriched pragmatics in determining what is said, but are simply choosing the most "plausible" interpretation for the speaker's utterance regardless of whether that meaning is part of what is said as opposed to what is implicated. Experiment 3 addressed whether the enriched paraphrases of what was said chosen by participants in Experiments 1 and 2 were indeed constitutive of what was said, and not conversational implicatures.

Participants in Experiment 3 were presented the same expressions used as stimuli in Experiments 1 and 2. However, this time the expressions were placed at the end of short contexts that induced a contextually-dependent, pragmatic interpretation for each speaker's utterance that differed from what the speaker pragmatically said. Consider the following example:

Bill wanted to date his co-worker Jane. Being rather shy and not knowing Jane very well, Bill asked his friend, Steve, about Jane. Bill didn't even know if Jane was married or not. When Bill asked Steve about this, Steve replied *Jane has three children*.

The context suggests that Steve implicates by his statement *Jane has three children* that "Jane is already married." To the extent that people can understand what Steve says, but not implicates, by *Jane has three children*, they should be able to distinguish between the enriched and implicated paraphrases of the final expressions.

The participants' task in Experiment 3 was to read story contexts ending with sentences such as *Jane has three children* and select which of two paraphrases best captured what the speakers said by their final utterances. One choice reflected an enriched interpretation of what was said (e.g., "Jane has exactly three children"), while another selection reflected the speaker's implication (e.g., "Jane is already married"). Our expectation was that participants would select the enriched interpretations of what was said and not the implicated meanings.

6. Method

6.1. Subjects

Thirty-two students from UC Santa Cruz participated in the experiment to meet a course requirement. All the participants were native English speakers.

6.2. Stimuli and design

The 25 sentences used as stimuli in Experiments 1 and 2 were placed at the end of story contexts that induced a meaning different from what speakers conversationally, yet pragmatically, say when uttering their expressions. Appendix D presents examples of these different stories.

A norming study with 12 undergraduate students at UC Santa Cruz demonstrated that people indeed interpreted these stories as inducing the implicature appropriate for the final sentence in each story. These participants were asked to read each story and to pick one of two alternative meanings as being the best paraphrase of the speaker's comment in the final utterance in each context. One alternative represented the enriched paraphrase of what the speaker said while the other represented what the speaker conversationally implicated in context. Overall, participants chose the implicature interpretations 96% of the time.

6.3. Procedure

The procedure was identical to that employed in Experiment 1. Participants read each story and the two possible paraphrases of what the speaker said by the final utterance in that story. Their task was to pick the meaning that best reflected what each speaker "said" by that utterance.

7. Results and discussion

Table 2 presents the proportion of participants who chose the enriched version of what is said for each type of expression. The overall standard deviation for these data was .27. Analyses of variance on these data showed a significant effect of sentence type, $F1(4, 124) = 12.02$, $p < .001$; $F2(4, 20) = 3.71$, $p < .05$. The percentage of people who chose the enriched paraphrase of what was said for each type of sentence was significantly above the chance level of 50%, with $p < .05$ for each comparison as determined by separate z -tests ($z = 4.66, 2.50, 5.17, 4.77$, and 4.43 for the cardinal, possession, scalar, time–distance, and temporal relation sentences, respectively). One interesting finding here is that people now recognize the distinct said, yet pragmatic, meaning for the possession utterances in this study more so than they did in Experiments 1 and 2. Placing speakers' utterances in

Table 2
Proportion of minimal choices in Experiment 3

Cardinal	.91
Possession	.72
Scalar	.95
Time–distance	.92
Temporal relation	.89
Mean	.86

context appears to make it easier to discern a distinct said meaning, especially when that said meaning is explicitly contrasted with an implicature.

The results of this study suggest that participants in Experiments 1 and 2 were not determining the “said” meaning of speakers’ utterances simply by selecting the *most* enriched interpretation available. Indeed, people have strong intuitions about the pragmatics of what is said even for speakers’ utterances in contexts that conveyed conversational implicatures. This conclusion differs from the claims of some Neo-Gricean theorists who maintain that enrichment of the information encoded by a speaker’s utterance takes place via a process of deriving conversational implicatures (Levinson, 1987a,b; Levinson, forthcoming). The Neo-Gricean view, for instance, cannot explain how or why listeners pragmatically enrich the information in utterances to recover what is said, while at the same time, not immediately drawing the inference that what is implicated must be part of what is said. Most generally, this study shows that people can distinguish between enriched said meaning, or *explicatures*, and conversationally derived implicatures, contrary to the standard nonliterality and implicature hypotheses.

EXPERIMENT 4

There are instances in which what we have termed the “minimal” interpretation of a speaker’s utterance accurately reflects his or her intended meaning. A good example of this is given by *I have had caviar* where it is quite likely that the speaker of this utterance says something like “I have eaten caviar at least once in my lifetime” and not “I have eaten caviar on the day this utterance was spoken.” Thus, our understanding of what speakers say by *I have had breakfast* and *I have had caviar* differ considerably because of our different knowledge about the routine nature of eating breakfast as opposed to eating caviar.

There are also situations in which a speaker’s utterance that usually has a clear said meaning can express a more ambiguous, closer to minimal, interpretation. Consider the following context ending with the utterance *Ralph has two rakes*.

A boy scout troop was doing its civic service by cleaning up the park in the middle of town. The park was a mess and the scouts needed many rakes and shovels to do the job. One scout noted that there weren’t enough rakes for everyone and said that two more were needed. The scout master told him to go to the hardware store and ask for Ralph. The master said to the scout, *Ralph has two rakes*.

It seems relatively clear in this situation that what the speaker says by *Ralph has two rakes* is that “Ralph has at least two rakes and may have more than two rakes,” while his implicated meaning is that the scout can actually obtain two rakes from Ralph. We have suggested in Experiments 1–3 that interpretations such as “Ralph has at least two rakes and is likely to have more than two” reflect speakers’ minimal meanings in using many types of indicative utterances and that such meanings do not completely capture people’s enriched understanding of what

is said. Even so, as the above context illustrates, there may indeed be situations in which a person clearly recognizes that a speaker's understanding of what is said may be somewhat ambiguous and actually closer to a speaker's minimal meaning.

Our aim in Experiment 4 was simply to explore whether people understand what speakers say in some contexts to be more closely related to what is often viewed as speakers' "minimal" meanings. Can untrained participants distinguish between different types of pragmatically-sensitive said meanings for speakers' utterances in context? Or is it the case that people *always* infer an enriched said meaning for speakers' utterances, such as when someone hears *Ralph has two rakes* and understands the speaker to be saying "Ralph has exactly two rakes."

8. Method

8.1. Subjects

Twenty-eight UC Santa Cruz undergraduate students participated as subjects. All the participants were native English speakers.

8.2. Stimuli and design

The stimuli included 20 stories with final sentences whose speakers' said meanings were minimal and 20 stories with the same final sentences whose speakers' said meanings were enriched. The final sentences were selected by randomly taking four sentences from each of the five groups of stimuli employed in the previous studies. Two possible "said" paraphrases were presented with each final expression (e.g., *Ralph has two rakes*). One paraphrase reflected the speaker's minimal meaning (e.g., "Ralph has at least two rakes and is likely to have more than two"), while the other paraphrase reflected the speaker's enriched meaning (e.g., "Ralph has two rakes but no more than two"). Appendix D presents examples of the stimuli for this study.

The 20 pairs of stories were divided into two counterbalanced sets of materials. Each list randomly presented stories with 10 minimal and 10 enriched final sentences (with 2 sentences from each of the 5 groups of stimuli). If a minimal sentence from one pair was presented in list A, then the enriched sentence from this pair was presented in list B, and vice versa.

8.3. Procedure

The participants were randomly presented one of the two booklets of stimuli which contained the instructions and all test materials. The instructions were identical to those employed in Experiment 1. Participants were asked to read each story and its final expression for the speaker's "said" interpretation and to choose the paraphrase that best reflected what the speaker said by his or her utterance. The task took about 15 minutes to complete.

Table 3
Mean proportion of minimal choices in Experiment 4

	Type of context	
	Minimal	Enriched
Cardinal	.88	.11
Possession	.92	.19
Scalar	.87	.09
Time–distance	.92	.13
Temporal relations	.82	.05
Means	.90	.14

9. Results and discussion

Table 3 presents the proportion of participants who chose the minimal paraphrases as the best reflections of the speakers' said meanings in both the minimal and enriched contexts. The overall standard deviation for these data was .33. Analyses of variance revealed a significant effect of both context type, $F(1, 27) = 72.10$, $p < .001$; $F(4, 16) = 59.04$, $p < .001$, and sentence type, $F(4, 108) = 5.12$, $p < .01$; $F(4, 16) = 3.82$, $p < .01$. The interaction of context type and sentence type was not reliable, both $F_s < 1$.

The proportion of participants who chose the minimal paraphrases of what was said was significantly different from chance for each type of sentence with $p < .05$ for each comparison as determined by separate z -tests ($z_s = 4.04, 4.47, 3.94, 4.47$, and 3.40 for the cardinal, possession, scalar, time–distance, and temporal relation sentences, respectively). These data show that in *some* cases people understand what speakers say as conveying minimal, and not enriched, pragmatic meaning. Thus, understanding what speakers say, or what is said, in uttering indicative expressions depends to some degree on context.

GENERAL DISCUSSION

We have examined people's intuitions about the difference between what speakers say, or what is said, and what they ordinarily implicate when uttering indicative expressions. Grice and many of his followers have adopted a theory of what is said that fails to acknowledge people's ordinary intuitions about what is said, which has resulted in a well-entrenched theory of conversational implicature. The findings from our studies are clearly contrary to the traditional Gricean view that pragmatically determined aspects of meaning beyond disambiguation and reference assignment are conversational implicatures and not reflective of what is said. Many aspects of enriched meaning previously thought to be generalized conversational implicatures are really part of our understanding of what is said by speakers' utterances and not implicatures at all. For example, people understand that what speakers say by *Jane has three children* has an enriched meaning like "Jane has exactly three children" and not a minimal one such as "Jane has at least

three children, but she may have more.” Even when informed of many linguists’ and philosophers’ beliefs that what is said reflects a minimal meaning, people still insist that what is said by *Jane has three children* is best captured by the enriched paraphrase “Jane has exactly three children.” There are situations, of course, in which people recognize that what a speaker says by an utterance like *Ralph has two rakes* is best captured by the “minimal” paraphrase “Ralph has two rakes and is likely to have more than two.” Furthermore, people can clearly distinguish between what speakers say and what they implicate in a particular context. Thus, people understand that a speaker’s said meaning of *Jane has three children* is “Jane has exactly three children” and, at the same time, recognize that the speaker can conversationally implicate in some circumstances that “Jane is married.”

The results of these studies support the arguments of several linguists and philosophers that pragmatics strongly influences our understanding of what is said as well as what is implicated (Blakemore, 1992; Carston, 1988, 1993; Sperber and Wilson, 1986; Recanati, 1989, 1993; Wilson and Sperber, 1981, 1993). Although these scholars differ in their proposals on how the semantic representation of a speaker’s utterance is “fleshed out” or “enriched” to form our understanding of what is said, each recognize that the gap between linguistic meaning and the proposition expressed by an indicative utterance cannot be bridged by reference assignment and disambiguation in the way that Grice and others have traditionally assumed.

The idea that pragmatic information via context helps determine the propositional content of an utterance has, of course, been advanced by other linguists (Atlas, 1979, 1989; Levinson, 1987a) and AI workers (Hobbs, 1987; Pereira and Pollack, 1987) and has, in part, led to the development of formal semantic theories such as *discourse representation theory* (Heim, 1988; Kamp, 1993) and *situation semantics* (Barwise and Perry, 1983). However, the present findings are consistent with the more radical claims of Carston (Carston, 1988, 1993), Sperber and Wilson (1986), Wilson and Sperber (1993), and Recanati (Recanati, 1989, 1993) that pragmatic processes of roughly the same sorts are involved in determining what is said and classic implicatures.⁵ Furthermore, the idea that pragmatics determines to a significant extent both what is said and what is implicated suggests that the traditional semantics–pragmatic distinction is orthogonal to the division between saying and implicating (Wilson and Sperber, 1981).

These conclusions about the role of pragmatics in determining what is said provide a new picture on speaker’s meaning. Fig. 1 presents the standard Gricean view. In this traditional account, a speaker’s meaning has two components: what is said and what is implicated. Pragmatics plays only a small role in determining what is said, again, for the purposes of disambiguation and reference assignment to form a complete propositional meaning for a speaker’s utterance. But pragmatics

⁵ We caution readers to recognize the limitations of our studies in that they have addressed only understanding of what is said by indicative utterances. Very few proposals that we know of explicitly look at pragmatics in understanding what is said by non-indicative expressions.

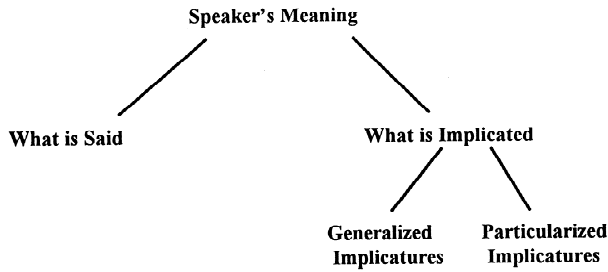


Fig. 1. The Gricean view of speaker meaning.

plays a major role in determining what is implicated, which can be divided into two types of meaning: generalized implicatures and particularized implicatures. Generalized implicatures are relatively independent of any particular context (the context may cancel them, but not give rise to them). They are closely related in content to explicit meaning. In essence, what they do is complement or specify further explicit meaning. Particularized implicatures depend on a specific context. They are typically quite different in content from the meaning of what is said.⁶

The present findings lead to a revised view on speaker meaning as shown in Fig. 2. In this account, the minimal said meaning acknowledged in the standard view is often pragmatically inadequate and needs to be enriched. Besides disambiguation and reference assignment, there is then an additional pragmatic process of enrichment that may take place at the level of what is said. In the revised theory, the job that is done by generalized implicatures in the standard theory is seen as part of the retrieval of what is said. The distinction between generalized and particularized implicatures is therefore unnecessary.

Given pragmatics' significant role in our understanding of what is said and what is implicated, how can we determine whether pragmatic aspects of meaning are

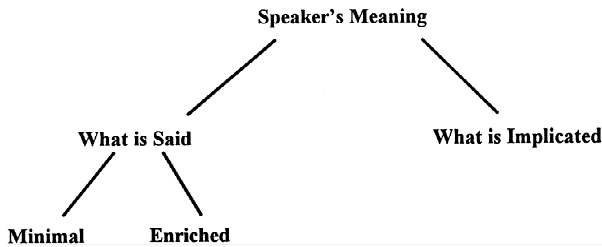


Fig. 2. The revised view of speaker meaning.

⁶ “What is said” may also be characterized as “explicit meaning” and “what is implicated” as “implicit meaning” along the lines suggested by Carston (Carston, 1988, 1993) and Sperber and Wilson (1986).

best understood as part of what is said as opposed to what is implicated? There may be two kinds of pragmatic processes, primary and secondary, that operate during normal language understanding. Primary pragmatic processes apply deep, default background knowledge to provide an interpretation of what speakers say. Secondary pragmatic processes use information from context to provide an interpretation of what speakers implicate in discourse. This scheme is somewhat consistent with the idea that listeners adhere to the principle of optimal relevance, especially in regard to trying to maximize contextual implications of an utterance while minimizing processing effort (Sperber and Wilson, 1986). Under this scheme, listeners' immediate application of stereotypical background knowledge dominates the application of secondary pragmatic processes to reveal what is said by a speaker's utterance as distinct from what the speaker implicates. Yet we know of no specific rule or principle that provides a neat distinction between primary and secondary pragmatic processes that allows us to predict in advance which pragmatic knowledge is best viewed as primary and prominent in understanding what is said and what pragmatic knowledge is secondary and most useful in determining what a speaker conversationally implicates.

Several scholars have suggested ways of adjudicating whether pragmatically determined aspects of meaning are part of what is said or what is implicated (Bach, 1994a,b; Carston, 1988; Recanati, 1989, 1993). But these proposals are quite difficult to experimentally test and potentially falsify. The failure to discover a single test or rule to determine in advance what aspects of pragmatics are part of what is said is not surprising; it follows Nunberg's (Nunberg, 1981) observation that even when we can assign a pragmatic explanation to a particular use of language, it will usually have only a limited predictive value. This suggests that it will always be much harder to objectively demonstrate that a given pragmatic meaning is part of what is said than it is to show, for instance, that a given syntactic rule underlies the grammaticality of a set of sentences. At the very least, though, we must acknowledge the importance of our pre-theoretic intuitions about differences between what is said and what is implicated. Our understanding of what is said is not the result of deep cognitive processes that are unavailable or inaccessible to untrained speakers–hearers (Recanati, 1989, 1993). Instead, our understanding of both what is said and what is conversationally implicated results from our general processes of pragmatic understanding even though these meanings are different and consciously available as distinct.

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Appendix A

Sentences Used As Stimuli In Experiment 1

CARDINAL SENTENCES

Jane has three children.
Joe owns two footballs.
Brian has three cats.
Lisa has four copies of her thesis.
Bill has one rake.

POSSESSION SENTENCES

John was walking a dog yesterday.
I saw Sally go into a house yesterday.
Robert broke a finger last night.
June passed me in a car yesterday.
Emily was weeding in a garden yesterday.

SCALAR SENTENCES

Everyone went to Paris.
Nobody washed the dishes.
Everyone enjoyed the movie.
Nobody went to the park.
Everyone wore a costume on Halloween.

TIME–DISTANCE SENTENCES

It will take us some time to get there.
Noah and Rachel are still some way away from home.
It will be awhile before Tom arrives.
Christmas is still some time away.
China is some distance from California.

TEMPORAL RELATION SENTENCES

The old king died of a heart attack and a republic was declared.
Mike turned 21 and his brother bought him a six-pack of beer.
Amy bought a new dress and went out dancing Saturday night.
Hal went jogging and it started to rain.
Virginia cleaned her house and her mother came to visit.

Appendix B*Examples of Stimuli for Experiment 1*

CARDINAL SENTENCES

Jane has three children.

- (a) Jane has at least three children, but may have more.
- (b) Jane has exactly three children, but no more than three.

POSSESSION SENTENCES

Robert broke a finger last night.

- (a) Robert broke a finger, either his own or someone else's last night.
- (b) Robert broke his own finger last night.

SCALAR SENTENCES

Everyone went to Paris.

- (a) Every single person in the entire world went to Paris.
- (b) Every single person in some group of people went to Paris.

TIME–DISTANCE SENTENCES

It will take us some time to get there.

- (a) The time between our departure and arrival is unspecified.
- (b) It will take us a fairly long time to reach our destination.

TEMPORAL RELATION SENTENCES

The old king died of a heart attack and a republic was declared.

- (a) The old king died of a heart attack, either before or after a republic was declared.
- (b) The old king died of a heart attack before a republic was declared.

Note:

- (a) = minimal paraphrase of what is said
- (b) = enriched paraphrase of what is said

Appendix 3

Examples of Stimuli for Experiment 3

CARDINAL SENTENCES

Bill wanted to date his co-worker Jane.
But Bill really didn't know much about her.
Being a bit shy, he first talked to another person, Fred.
Fred knew Jane fairly well.
Bill wondered if Jane was single.
Fred replied,
Jane has three children.

- (a) Jane is married.
- (b) Jane has exactly three children, but no more than three.

POSSESSION SENTENCES

Robert was supposed in the big game.
But he didn't show up when he was supposed to.
His coach wondered where Robert was.
A friend of Robert's said,
Robert broke a finger last night.

- (a) Robert can't play in the game today.
- (b) Robert broke his own finger last night.

SCALAR SENTENCES

Pauline was wondering which friends would come to her party.
"Will people be coming to my party?" she asked Beth.
Beth replied,
Everyone went to San Francisco.

- (a) Nobody went to the party.
- (b) Every single person in some group of people went to San Francisco.

TIME-DISTANCE SENTENCES

James and Joel were going to go skiing.
James wanted to go jogging before they left.
He asked Joel if he'd have time for a run before they left.
Joel replied,
It will take us some time to get there.

- (a) You won't have time to go jogging.
- (b) It will take us a fairly long time to reach our destination.

TEMPORAL RELATION SENTENCES

The professor was lecturing on the life of Jose Sebastian.
 He was a famous rebel in Spain who fought to overthrow the King.
 Many citizens wanted Sebastian to serve as their President.
 "Did Jose Sebastian ever become President?" one student asked.
 The professor replied,
The old king died of a heart attack and a republic was declared.

- (a) Jose Sebastian became President of the republic.
- (b) The old king died of a heart attack before a republic was declared.

Note:

- (a) = implicature interpretation
- (b) = enriched interpretation of what is said

Appendix D

Examples of Stimuli for Experiment 4

CARDINAL SENTENCES

A boy scout troop was doing its civic service by cleaning up the park in the middle of town. The park was a mess and the scouts needs many rakes and shovels to do the job. One scout noted that there weren't enough rakes for everyone and said that two more were needed. The scout master told him to go to the hardware store and ask for Ralph. The master said to the scout *Ralph has two rakes.*

POSSESSION SENTENCES

Richard was an avid collector of antiques. One of his hobbies was to go to auctions early to buy new pieces and to show off parts of his own collection. At one auction, Richard was leaning over looking at one exhibit and talking to people about the piece of his own that he brought. As one of Richard's friend later commented when Richard stumbled, *Richard broke a vase.*

SCALAR SENTENCES

Moe was a grade-school teacher. He was talking to his students about sports and some of the great feats that athletes had accomplished. One student asked

how fast a person could run one mile. Another student quickly yelled *Three minutes!* Moe replied, *Nobody has run a three-minute mile.*

TIME–DISTANCE SENTENCES

John and Peter liked to talk long hikes in unfamiliar forests. During one trip, Peter wondered where the waterfall was that they had heard about and how long it would take them to hike there. John said, *I have no idea how long it will take us to get there. It will take us some time to get there.*

TEMPORAL RELATION SENTENCES

Mike liked to take long bike rides each day. He also like to sing as he rode because he had a terrific voice. Mike's roommate thought this was funny. He said to someone that *Mike likes to ride his bike and sing at the top of his lungs.*

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