CONVERSATIONAL IMPLICATURES: FOUNDATIONS

Alejandro Pérez Carballo

University of Massachusetts, Amherst
apc@umass.edu

Consider the following two exchanges:

(1) *Context: Zoe is visiting Ernie's university. Ernie is about to go off to a meeting.*
   a. *Zoe*: Where can I get a hot drink?
   b. *Ernie*: Angelika has a coffee machine in her office.

(2) *Context: Zoe is visiting Ernie's university. Zoe does not drink coffee.*
   a. *Zoe*: Why does your department smell like coffee?
   b. *Ernie*: Angelika has a coffee machine in her office.

In each case, Ernie manages to communicate something different by his utterance. In both cases, he uttered the same sentence.

Although Grice sometimes talks as if he's interested in aspects of speaker meaning, rather than aspects of what is communicated, a case can be made that what Grice is ultimately interested is more closely related to what is communicated. But even the nature of that relationship is far from straightforward—cf. Saul 2002. For Grice's views on how to analyze the notion of speaker-meaning, see Grice 1957. For criticisms of Grice's analysis, and for discussion of the ways in which speaker-meaning differs from what is communicated, see Davis 2002.

Two options:

i. The sentence means different things in each of the relevant contexts.
ii. The sentence means the same thing in each of the two context, but what was communicated was different from what the sentence meant.

Exactly how to account for the putative difference in meaning would be a further question.

The second option has at least two things to recommend it:

- It seems to mesh well with an intuitive notion of what the sentences mean.
- It keeps our assignment of meaning to sentences simpler, and thus(?) it is methodologically preferable.

Cf. the discussion of the 'Modified Occam's Razor' in Grice 1978, p. 47ff.

Another example:

(3) *Context: Bert and Ernie invited Zoe over for dinner. Ernie knows Zoe better than Bert does.*
   a. *Bert*: Anything I should keep in mind when planning the menu?
   b. *Ernie*: Zoe is allergic to peanuts.

(4) *Context: Bert and Ernie invited Zoe and Yael for dinner. Ernie knows both of them better than Bert does. Bert is only in charge of making dessert.*
   a. *Bert*: What if I make peanut butter brownies?
   b. *Ernie*: Zoe is allergic to peanuts.

In each case, Ernie communicated something different by his utterance. In both cases, he uttered the same sentence. It seems plausible that what Ernie literally said, in each case, is the same.

I'm being sloppy with the distinction between the conventional meaning of φ and what a speaker literally says in uttering φ in a context c. For evidence that Grice was not so sloppy, see Neale 1992, p. 520f.

More examples are easy to find. In each of the pairs below, we can find contexts where the content of the b-sentence is communicated by an utterance of the a-sentence, and contexts in which it is not.

(5) a. Some of our students will go to graduate school.
b. Not all of our students will go to graduate school.

(6) a. Seth had tea or coffee.
b. Seth did not have both tea and coffee.

(7) a. I have nine dollars in my wallet.
b. I have exactly nine dollars in my wallet.

(8) a. They had a child and got married.
b. They first had a child and then got married.

As an aside: our intuitions about what is communicated in these cases rely on certain assumptions about what the audience will come to believe as a result of the corresponding utterances.

So, rather than being sensitive to what Ernie actually communicated, we are picking up on something like what his audience can *reasonably* infer.

On this point, again, see Saul 2002.

I will proceed as if our interest is on the normative question (hopefully not much will hinge on that). But I will be sloppy and talk sometimes as if we were interested in the question of what in fact gets communicated.

COOPERATION AND CONVERSATIONAL IMPLICATURES

Grice's starting idea is that conversation is a purposeful activity:

> Our talk exchanges do not normally consist of a succession of disconnected remarks, and would not be rational if they did. They are characteristically, to some degree at least, cooperative efforts; and each participant recognizes in them, to some extent, a common purpose or set of purposes, or at least a mutually accepted direction. (Grice 1975, p. 26)

"One of my avowed aims is to see talking as a special case or variety of purposive, indeed rational, behavior." (Grice 1975, p. 28)

It may be worth keeping in mind that the initial motivation behind Grice's work on implicatures was to vindicate the idea that formal theories of meaning for natural languages were possible. So-called Ordinary Language Philosophers were impressed by (among other things!) the divergences in meaning between the connectives of classical logic and the corresponding English words. Grice's insight was to explain these divergences in a systematic way while still holding on to the idea that, say, the meaning of indicative conditionals could be given in terms of the material conditional (see Grice 1989, ch. 4). For a survey of some of the philosophical context, see Soames 2005, ch. 9 as well as Neale 1992.

And this activity, Grice thinks, is governed by certain principles. In particular (p. 25):

(9) THE COOPERATIVE PRINCIPLE: "Make your conversational contribution such as is required, at the stage at which it occurs, by the accepted purpose or direction of the talk exchange in which you are engaged."

While the issues here are subtle, the rough idea is this:

(10) Unless participants are following the Cooperative Principle, engaging in conversation would not be an effective means of meeting their goals.

To get something more specific out of the Cooperative Principle, we need to make some assumptions about what the goals of participants in a conversation

are. Grice was particularly interested in conversations whose point was the *exchange of information*:

> I have stated my maxims as if this purpose were a maximally effective exchange of information; this specification is, of course, too narrow, and the scheme needs to be generalized to allow for such general purposes as influencing or directing the actions of others. (p. 28)

More specifically, the point of the conversations Grice is interested in is that of effectively exchanging information *about relevant issues*.

We can already see how, with these ingredients alone, we can tell some story that explains why one would infer different things from Ernie's utterances in (2) and (1) *even if* we assume that his words meant the the same thing in both cases.

Question: what if we replace (11c) with 'Ernie's utterance could only achieve its purpose if *Zoe will infer from the utterance* that she can get coffee at Angelika's office'?

(11) a. The purpose of Ernie's utterance is to effectively convey information to Zoe about relevant issues.
b. The only relevant issue is where Zoe can find a hot drink.
c. Ernie's utterance could only achieve its purpose if Zoe can get coffee at Angelika's office.
d. Since Ernie is following the Cooperative Principle, he must believe that Zoe can get coffee at Angelika's office.

As Grice would put it, Ernie's utterance in (1) *conversationally implicates* that Zoe can get coffee at Angelika's office.

THE MAXIMS

In order to get more mileage out of this account, Grice lists a few more specific principles that, for conversations whose purpose is the effective exchange of information, appear to be consequences of the Cooperative Principle (pp. 26–27):

(12) QUALITY: Only say what you believe to be true and for which you have good evidence.

(13) QUANTITY: Do not say more nor less than is required.

(14) RELATION (or RELEVANCE): Only say what is relevant.

(15) MANNER: (i) avoid obscurity, (ii) avoid ambiguity, (iii) be brief, (iv) be orderly.

Grice's definition of conversational implicature is then given in terms of these maxims:

Grice defined conversational implicature in terms of the notion of implicature. He earlier introduced the latter notion as a term of art, meant to capture what a speaker 'implied, suggested, [or] meant'.

> A man who, by (in, when) saying (or in making as if to say) that *p* has implicated that *q*, may be said to have conversationally implicated that *q*, provided that (1) he is to be presumed to be observing the conversational maxims, or at least the Cooperative Principle; (2) the supposition that he is aware that, or

> thinks that, *q* is required in order to make his saying or making as if to say *p* (or doing so in *those* terms) consistent with this presumption; and (3) the speaker thinks (and would expect the hearer to think that the speaker thinks) that it is within the competence of the hearer to work out, or grasp intuitively, that the supposition mentioned in (2) is required. Grice 1975, pp. 30-31

We can rewrite this as follows:

Here I'm following Potts forthcoming, who in turn follows Hirschberg 1985.

(16) Proposition *q* is a conversational implicature of utterance *U* by agent *A* in context *c* if, and only if
   a. it is mutual, public knowledge of all the discourse participants in *c* that *A* is obeying the Cooperative Principle;
   b. in order to maintain (16a), it must be assumed that *A* believes *q*; and
   c. *A* believes that it is mutual, public knowledge of all the discourse participants that (16b) holds.

It thus seems that we cannot define the notion of conversational implicature in terms of the notion of *common ground* (Stalnaker 1978, 2002). Since the common ground of a conversation may entail that there are no speakers, in order to fully model the dynamics of conversation we need to assume a more complex representation of the conversational score.

A few tweaks are possible:

- Embed the first two clauses under '*A* believes that'.
- Replace 'mutual, public knowledge' with 'common knowledge'.
- Remove (16c) entirely.

Cf. Hirschberg 1985, p. 38ff.

For our purposes, we can proceed with a simplified definition (where $[\![\varphi]\!]_c = \lambda w.[\![\varphi]\!]^{w,g_c}$):

This would do justice to Grice's own words (Grice 1989, p. 86): "what is [conversationally] implicated is what it is required that one assume a speaker to think in order to preserve the assumption that he is observing the Cooperative Principle (and perhaps some conversational maxims as well), if not at the level of what is said, at least at the level of what is implicated." Cf. Saul 2002, p. 23of.

(17) CONVERSATIONAL IMPLICATURE: A speaker *S*'s utterance of φ in *c* conversationally implicates *q* iff in order to maintain the presumption that *S* is following the Cooperative Principle by uttering φ in *c*, his audience must *in c* think that *S* believes *q* (in addition to believing $[\![\varphi]\!]_c$).

This definition presupposes we have already come to a view on what is literally said by φ in a given context. But Grice was hoping to distinguish, among all the things that are communicated by an utterance of φ, those that correspond to the conversational implicatures of that utterance from those that correspond to the conventional meaning of φ. This is because he was interested in explaining how meaning conventions arise out of acts of communication. This, however, is a story that will not concern us.

(I write 'the audience must *in c* think' to mean: in light of what is common knowledge in *c*.)

It will be useful to keep in mind two of the features of conversational implicatures that Grice highlights.

(18) If *q* is a conversational implicature of an utterance of φ at *c*, then (in general and to a greater or lesser extent):
   a. CANCELABILITY: there are contexts c' such that $g_c = g_{c'}$ but, after an utterance of φ in c', it would not be reasonable to infer *q*;
   b. NON-DETACHABILITY: whenever $[\![\psi]\!]_c = [\![\varphi]\!]_c$, *q* is a conversational implicature of ψ at *c*; and

But see Hirschberg 1985, p. 27f for a challenge to Grice's claim that these properties are mere consequences of his definition.

Arguably, conversational implicatures (as Grice understood them) must also satisfy the following condition:

(19) CALCULABILITY: The hearer must be able to work out the implicature

Cf. Recanati 2003, p. 299ff on the 'availability condition'.

by herself.

QUANTITY IMPLICATURES

A particular family of (conversational) implicatures will be of interest to us. Best to start with an example. Recall the sentences in (5):

(5) a. Some of our students will go to graduate school.
b. Not all of our students will go to graduate school.

Assuming that the meaning of (5a) is compatible with

(20) All of our students will go to graduate school.

we can explain how nonetheless it would be reasonable to infer, from an utterance of (5a), that (5b) is true.

(21) a. The speaker uttered (5a).
b. *Contextual assumptions*:
(i) The speaker could have uttered (20).
(ii) (20) is at least as relevant as (5a); (20) is no more obscure or ambiguous than (5a); (20) is no less brief nor orderly than (5a).
(iii) (20) is more informative than (5a).
(iv) The speaker is obeying the Cooperative Principle.
(v) The speaker has adequate evidence as to whether (20) is true.
c. Unless the speaker believes that (20) is not true, or lacks sufficient evidence for it, she would have violated the QUANTITY in uttering (5a) instead of (20).
d. Unless the speaker believes that (20) is not true, or lacks sufficient evidence for it, she would not have violated any of the maxims by uttering (20) instead of (5a).
e. Therefore, the speaker must believe that (20) is false.

Or, perhaps, more briefly:

a. The speaker uttered (5a)
b. *Contextual assumptions*:
(i) The speaker could have uttered (20).
(ii) The speaker has adequate evidence as to whether (20) is true.
(iii) The best explanation for why she did not utter (20) is that she believes that (20) is false.
c. Therefore, the speaker must believe that (20) is false.

The general schema is what matters:

(22) The speaker uttered (5a). Given contextual assumptions, unless the speaker believes that (20) is false, she violated QUANTITY. To maintain that she is being cooperative, it must then be assumed that she believes that (20) is false.

Can we maintain that any time a use of *some* communicates the equivalent *some but not all*, a similar story can be told?

Prima facie, it is hard to see how the Gricean story can do justice to the putative fact that the b-sentence in each pair below is a conversational implicature of an utterance of the a-sentence:

(23) a. Bert believes that some of his guests are allergic to peanuts. Chierchia 2004.
b. Bert believes that not all of his guests are allergic to peanuts.

(24) a. Bert knows that some of his guests are allergic to peanuts.
b. Not all of Bert's guests are allergic to peanuts.

(25) a. Every guest liked some of the dishes. Landman 2000.
b. Every guest liked some but not all of the dishes.

Similarly, it appears that the Gricean story predicts that the b-sentence in each pair below is an implicature of an utterance of the a-sentence, contrary to the (putative?) facts:

(26) a. Zoe ate some of the candies. Kroch 1972.
b. It is not the case that Zoe ate some but not all of the candies.

(27) a. Zoe ate the muffin or some of the candies. Chierchia 2004.
b. It is not the case that Zoe ate the muffin or all of the candies.

(28) a. Zoe ate more than three candies. Krifka 1999.
b. It is not the case that Zoe ate more than four candies.

As we will see, this list is far from exhaustive.

Our guiding question will be: are quantity implicatures—in particular, the subclass we will identify as *scalar implicatures*—conversational implicatures? Or are they aspects of (literal) meaning?

A somewhat related problem has to do with the so-called Hurford's constraint (Hurford 1974), which in particular predicts that ⌜φ *or* ψ⌝ should be anomalous whenever φ entails ψ or ψ entails φ. If the semantics gives to *some* the 'usual' interpretation, we would expect that 'Zoe ate some of the candies or all of them' would be infelicitious, contrary to the facts.

REFERENCES

Chierchia, G. 2004. Scalar implicatures, polarity phenomena, and the syntax/pragmatics interface. In: *Structures and beyond*. Ed. by A. Belletti Oxford: Oxford University Press, pp. 39–103.

Davis, W. A. 2002. *Meaning, Expression, and Thought* Cambridge: Cambridge University Press.

Grice, H. P. 1957. Meaning. *Philosophical Review* 66.3, pp. 377–388.

———. 1975. Logic and Conversation. In: *Syntax and Semantics*. Ed. by P. Cole and J. Morgan. Vol. 3 New York: Academic Press, pp. 41–58. Reprinted as Ch. 2 of Grice 1989, pp. 22–40. Page numbers referred to the reprinted version.

———. 1978. Further Notes on Logic and Conversation. In: *Syntax and Semantics*. Ed. by P. Cole. Vol. 9 New York: Academic Press, pp. 183–197. Reprinted as Ch. 3 of Grice 1989, pp. 41–57. Page numbers referred to the reprinted version.

———. 1989. *Studies in the Way of Words* Cambridge, Mass.: Harvard University Press.

Hirschberg, J. B. 1985. *A Theory of Scalar Implicatures*. PhD thesis. University of Pennsylvania.

Hurford, J. R. 1974. Exclusive or Inclusive Disjunction. *Foundations of Language* 11.3, pp. 409–411.

Krifka, M. 1999. At least some Determiners aren't Determiners. In: *The Semantics/Pragmatics Interface from Different Points of View*. Ed. by K. Turner. Current Research in the Semantics/Pragmatics Interface, 1. Elsevier.

Kroch, A. 1972. Lexical and inferred meanings for some time adverbs. *Quarterly Progress Report, MIT Research Laboratory of Electronics* 104.

Landman, F. 2000. *Events and Plurality: The Jerusalem Lectures*. Studies in Linguistics and Philosophy, 76. Dodrecht: Kluwer Academic Publishers.

Neale, S. 1992. Paul Grice and the Philosophy of Language. *Linguistics and Philosophy* 15.5, pp. 509–559.

Potts, C. Forthcoming. Presupposition and implicature. In: *The Handbook of Contemporary Semantic Theory*. Ed. by S. Lappin and C. Fox. Second edition Oxford: Wiley-Blackwell. Preprint available at `http://web.stanford.edu/~cgpotts/manuscripts/potts-blackwellsemantics.pdf`.

Recanati, F. 2003. Embedded implicatures. *Philosophical Perspectives* 17.1, pp. 299–332.

Saul, J. M. 2002. Speaker meaning, what is said, and what is implicated. *Noûs* 36.2, pp. 228–248.

Soames, S. 2005. *Philosophical Analysis in the Twentieth Century, Volume 2: The Age of Meaning* Princeton, NJ: Princeton University Press.

Stalnaker, R. C. 1978. Assertion. In: *Syntax and Semantics*. Ed. by P. Cole. Vol. 9 New York: Academic Press, pp. 315–322. Reprinted in Stalnaker 1999.

———. 1999. *Context and Content* Oxford: Oxford University Press.

———. 2002. Common Ground. *Linguistics and Philosophy* 25.5, pp. 701–721.