

**Conversational Implicature**  
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**Summary**

Conversational implicatures (i) are implied by the speaker in making an utterance; (ii) are part of the content of the utterance, but (iii) do not contribute to direct (or explicit) utterance content; and (iv) are not encoded by the linguistic meaning of what has been uttered. In (1), Amelia asserts that she is on a diet, and implicates something different: that she is not having cake.

(1) Benjamin: Are you having some of this chocolate cake?

Amelia: I'm on a diet.

Conversational implicatures are a subset of the implications of an utterance: namely those that are part of utterance content. Within the class of conversational implicatures, there are distinctions between particularized and generalized implicatures; implicated premises and implicated conclusions; and weak and strong implicatures.

An obvious question is how implicatures are possible: how can a speaker intentionally imply something that is not part of the linguistic meaning of the phrase she utters, and how can her addressee recover that utterance content? Working out what has been implicated is not a matter of deduction, but of inference to the best explanation. What is to be explained is why the speaker has uttered the words that she did, in the way and in the circumstances that she did.

Grice proposed that rational talk exchanges are cooperative and are therefore governed by a Cooperative Principle (CP) and conversational maxims: hearers can reasonably assume that rational speakers will attempt to cooperate and that rational cooperative speakers will try to make their contribution truthful, informative, relevant and clear, *inter alia*, and these expectations therefore guide the interpretation of utterances. On his view, since addressees can infer implicatures, speakers can take advantage of their ability, conveying implicatures by exploiting the maxims.

Grice's theory aimed to show how implicatures could in principle arise. In contrast, work in linguistic pragmatics has attempted to model their actual derivation. Given the need for a cognitively tractable decision procedure, both the neo-Gricean school and work on communication in relevance theory propose a system with fewer principles than Grice's. Neo-Gricean work attempts to reduce Grice's array of maxims to just two (Horn) or three (Levinson), while Sperber and Wilson's relevance theory rejects maxims and the CP and proposes that pragmatic inference hinges on a single communicative principle of relevance.

Conversational implicatures typically have a number of interesting properties, including calculability, cancelability, nondetachability, and indeterminacy. These properties can be used to investigate whether a putative implicature is correctly identified as such, although none of them provides a fail-safe test. A further test, embedding, has also been prominent in work on implicatures.

A number of phenomena that Grice treated as implicatures would now be treated by many as pragmatic enrichment contributing to the proposition expressed. But Grice's postulation of implicatures was a crucial advance, both for its theoretical unification of apparently diverse types of utterance content and for the attention it drew to pragmatic inference and the division of labor between linguistic semantics and pragmatics in theorizing about verbal communication.

## Keywords

implicature, conversational implicature, pragmatics, inference, communication, speaker meaning, Grice, relevance theory, neo-Gricean pragmatics

### 1. Examples and Definitions

Speakers can intentionally imply something different from what they say. Consider (1) and (2):

(1) Benjamin: Are you having some of this chocolate cake?

Amelia: I'm on a diet.

(2) I'm sure he's glad that you waited until he died before expressing your opinion of him.

In (1), Amelia asserts that she is currently on a diet. She also intentionally implies something else: that she is not going to have any of the cake.

The sentence in (2), an attested example, was produced as an ironic reply to a negative comment posted on a newspaper website under an article about the death of a public figure. Clearly, the author of (2) did not intend to assert what one would think if one took her words at their face value, and she did intend to convey something quite different.

In pragmatics, following the work of Paul Grice (1975, 1989), the word “implicature” is used as a term for utterance content that the speaker intentionally implies but does not say or state.<sup>1</sup> More precisely, a conversational implicature is something that (i) a speaker implies by making an utterance and (ii) is part of the content of the utterance (or “speaker meaning”),<sup>2</sup> but which (iii) does not contribute to the direct (or explicit) utterance content (e.g. the assertion in assertive utterances)<sup>3</sup> and which (iv) is not encoded by the linguistic meaning of what has been uttered.

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1. In Grice's original usage, the term “implicature” was to be reserved for the act of implicating, while he proposed calling what a speaker implicates an “implicatum” (Grice, 1975, pp. 43–44). The latter term, however, never caught on.

2. The phrases “content of the utterance”/ “speaker meaning” here may need to be read in a broad sense where they in general cover not only propositional content but also illocutionary force (or something similar), for reasons shown in section 1.1. In general, then, utterance content would include a set of directly expressed force-content pairs and a set of implicated force-content pairs. But see Sperber and Wilson (1986, pp. 243–254) for an alternative approach that models communicated illocutionary information within propositional content. (My thanks to an anonymous reviewer for pushing me to be clear about this.) Note that we may need to think of the sets as fuzzy because of weak implicatures (see section 4.4) and weak explicatures (not discussed here).

3. The expression “direct (or explicit) utterance content” is used here for two reasons. First, the Gricean term “what is said” is sometimes used to refer to the words uttered, sometimes to refer to a minimal proposition obtained by decoding the words used, disambiguating ambiguous expressions and assigning reference to indexicals, and sometimes to what the speaker asserts. The term “direct/explicit utterance content” unambiguously picks out the last of these (for assertive utterances). Secondly, this term, unlike “what is asserted” or “what is stated,” covers the non-implicated speaker meaning/content of non-declarative sentences and non-assertive utterances such as

Amelia's utterance implicates that she is not having the cake. Clearly this implicature is not part of the encoded meaning of the sentence she uttered, given that utterances of the sentence in different circumstances will not in general convey that implicature (see section 4.2 on cancelability). What is more, the implicature is not part of the direct utterance content—what Amelia stated or asserted. If it turned out that she was not on a diet, then she lied to Benjamin, but if she was on a diet but intended to have cake anyway, she did not lie, but did intend to mislead.

### 1.1 Implicature and Force

Not every utterance is a statement or assertion. Speakers also ask questions, give orders, make promises, and more. In the standard terminology, these acts differ in illocutionary force (Austin, 1962; Searle, 1969, 1976; Bach & Harnish, 1979; Sperber & Wilson, 1986, pp. 243–54).

Searle (1975) drew attention to what he called indirect speech acts, utterances that have an indirect illocutionary force. For example, in (3a), Amelia says something about what she wants and indirectly requests that her addressee pass the salad. Another way to make this request indirectly is shown in (3b), where the sentence uttered is an interrogative, the form whose central purpose is to ask questions.

- (3) a. Amelia: I want you to pass me the salad.  
 b. Amelia: Can you pass the salad?

Indirect speech acts are generally regarded as examples of conversational implicature,<sup>4</sup> with implicated illocutionary force.<sup>5</sup>

## 2. Distinctions

The terminology around implicatures is somewhat involved, and it is worth making a few clarifications.

### 2.1 Conversational and Conventional Implicatures

The adjective “conversational” is used to mark two distinctions. Grice and some other theorists contrast conversational implicatures with conventional implicatures (Grice, 1975, pp. 44–45), where these are like conversational implicatures in being intentionally communicated implications of an utterance that do not contribute to the proposition expressed, but unlike them in that they are part of the conventional or linguistically encoded meaning. A putative example is the contrast conveyed by the use of the word “but,” as in example (4):

- (4) John is tired but happy.

Other theorists have argued that there are no conventional implicatures: no implicatures are part of encoded linguistic meaning (Sperber & Wilson, 1986, p. 182;

questions and commands. It is roughly equivalent to relevance theory's explicatures (Sperber & Wilson, 1986, p. 182) and Bach's implicature (1994).

4. On the relation between conversational implicatures and indirect speech acts, see Braun (2011).

5. Similarly, (1) might be analyzed as implicating an indirect *representative* speech act (indirectly telling Ben that Amelia is not going to have cake or does not want cake) or an act of indirectly refusing his offer (a *commissive*, perhaps), or both. (Italics here indicate types of illocutionary force.)

Blakemore, 1987; Wilson & Sperber, 1988; Wilson & Sperber, 1993; Bach, 1999, 2006, pp. 29–30).

## 2.2 Conversational and Non-Conversational Implicatures

For Grice, conversational implicatures are defined as implicatures that rely on principles governing conversation and other communicative interaction, and in principle they therefore also contrast with non-conversational implicatures. Of these, he says only that they would be a result of “aesthetic, social, or moral” maxims (Grice, 1975, p. 47), and this possibility has not been much explored. (An exception is Leech’s work on maxims of politeness: Leech, 1983, pp. 104ff; Leech, 2014.)

In what follows, wherever it is not otherwise qualified the term “implicature” will be used to refer only to conversational implicatures.

## 2.3 Particularized and Generalized Implicatures

Grice suggested that there are sentences which would “normally (in the absence of special circumstances)” convey a certain implicature (Grice, 1975, p. 56). Consider:

(5) John went into a house yesterday.

Utterances of (5) will generally be taken to implicate that the house John went into is not his own. Grice called such implicatures generalized conversational implicatures (Grice, 1975, p. 56). In contrast, implicatures whose communication exploits features of a specific situation, as in (1) and (2) above, are known as particularized conversational implicatures (Grice, 1975, p. 56).

Some theorists have argued that generalized and particularized implicatures are distinct kinds and require separate theoretical treatment. In particular, neo-Gricean approaches to pragmatics, which have focused on pragmatic inferences that rely on the presence of a specific lexical item or grammatical construction<sup>6</sup>, treat generalized implicatures as suited to distinct theoretical treatment from particularized implicatures (Gazdar, 1979, pp. 37–62; Horn, 1984; Levinson, 1987; Levinson, 2000).

Levinson (2000) further claims that it is necessary to distinguish a level of utterance-type meaning, distinct from sentence(-type) meaning and utterance-token meaning. He argues that while particularized implicatures are possessed by particular individual utterances (i.e. utterance tokens), generalized implicatures inhere in utterance types. On this view, the implicature that the house is not John’s is a property of the action-type sayings of the sentence in (5).

Sperber and Wilson, Neale, and Carston argue that there is no theoretically interesting categorical distinction to be made between generalized and particularized implicatures (Sperber & Wilson, 1987, p. 748; Neale, 1992, p. 524 n. 18; Carston, 1995): all implicatures depend for their communication both on features of the context and features of the utterance. On this view, there is a continuum. Implicatures which are closer to the generalized end of the scale are those for which the required features are easy to bring to mind in a more or less “neutral” context. (On the interpretation of sentences presented without any specified context, see Breheny, Katsos, & Williams, 2006.)

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6. This category does not coincide with generalized conversational implicatures as Grice defined them. Utterances of (2) will normally be taken as ironic, for example, with little help required from special circumstances, given the absurdity of using the sentence as a straightforward assertion. But its implicatures are not due to the presence of any specific lexical item or construction.

The topic of generalized conversational implicatures is controversial in another way. Many pragmatically inferred contributions to utterance content that are seen as generalized conversational implicatures by neo-Griceans would be analyzed by others (including relevance theorists and the Gricean philosopher of language Kent Bach) as contributing to the proposition expressed and thus (by definition) not implicatures at all (Carston, 1995; Carston, 2002, p. 258; Wilson & Sperber, 2004, p. 617). One such example is (6):

(6) Paul's book is good.

An utterance of this sentence would generally convey some specific relation between Paul and the book: e.g. "the book that Paul wrote," "the book that Paul owns," "the book that Paul has just been talking about." Given that the genitive *-s* morpheme does not determine this relation, it must be pragmatically inferred. Levinson analyses this as an implicature, but Carston argues that the conveyed relation is part of what the speaker asserts and as such is not implicated (1995, pp. 216, 221, 237).<sup>7</sup>

#### 2.4 Implications and Implicatures

Implicatures are implications of utterances, but not everything that can rightly be inferred from an utterance is an implicature (Sperber & Wilson, 1986, pp. 194–195; Bach, 2006, p. 26). From the speaker's choice of words, the sound of her voice, and other features of an utterance, a hearer may be able to infer many things: her place of origin, her emotional or physical state, whether she is guilty of a certain crime, and so on. Obviously, speakers need not intend to communicate such implications. What is more, they do not intend to convey all the logical implications of the propositions they express (for example, the logical disjunction of the proposition expressed, *p*, with every proposition: *p or q or r or s or . . .*).

It is therefore necessary to distinguish between what is implied by an utterance (in the context of utterance) and the subset of these implications that the speaker intends to communicate, that is, to openly convey to the addressee. The implications in this subset are the implicatures of the utterance (Sperber & Wilson, 1986, pp. 194–195; Sperber & Wilson, 2008, pp. 98–100).

The condition "that the speaker intends to openly convey" comes from a distinct but related strand of Grice's work, his theory of meaning (Grice, 1957). Grice pointed out that while it is characteristic of communication that producers of utterances intend others to entertain certain thoughts, that is also true of deception or covert manipulation. What distinguishes communication is that the speaker has the further intention that the addressee grasp that the speaker intended to convey the thoughts in question. (For discussion, see Sperber & Wilson, 1986, pp. 21–24; Neale, 1992, pp. 544–550; Green, 2007; Wharton, 2009, pp. 18–47.)

Assuming that this is correct, there must be cases where the speaker intends her utterance to have a particular implication and intends the implication to be grasped, but does not intend the hearer to grasp that she so intends. One example is intentionally speaking in a croaky voice, hoping that your boss will infer an illness and send you home. Thus it is not sufficient to define implicatures as implications of an utterance that the speaker intends the hearer to grasp.

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7. Carston (op. cit.) also points out that it is hard to see how this could be a generalized implicature (as Levinson claims), given that the relation inferred depends on the context.

Two further distinctions, between implicated premises and implicated conclusions and between weak and strong implicatures, are discussed in section 3.7 and section 4.4 respectively<sup>8</sup>.

### 3. Theories of Pragmatic Inference

An obvious question is how implicatures are possible: how can a speaker intentionally imply something that is not part of the linguistic meaning of the phrase she utters, and how can her addressee recover that utterance content?

There is considerable consensus on the general character of pragmatic inference. Working out what has been implicated is not a matter of deduction, like a mathematical or logical proof; it is an instance of inference to the best explanation (also known as “abductive inference” or “abduction”) (Bach & Harnish, 1979, pp. 92–93; Sperber & Wilson, 1986, pp. 69–70; Hobbs, Stickel, Appelt, & Martin, 1993; Allott, 2008). What is to be explained is why the speaker has uttered the words that she did, in the way that she did, and in the circumstances that she did. In some cases, the best explanation may simply be that she intended to assert what the sentence normally means (Bach, 2006, pp. 24–25). But in cases like (1) and (2), one can infer that what the speaker meant does not coincide with what she stated, and that she must have intended to convey something else: an implicature.

It is also generally accepted that this inference is mandated and guided by presumptions or expectations about speakers’ utterances (Sperber & Wilson, 1986, pp. 13–14; Bach, 2006, pp. 24–25) and that these expectations are grounded in a pragmatic principle or principles. However, different pragmatic theories propose different answers to the questions of what the principles are and what expectations they mandate.

#### 3.1 The Cooperative Principle and Conversational Maxims

Grice proposed a theory of talk-exchanges (usually called his “theory of conversation”) one aim of which was to explain how implicatures can be meant and understood. A key assumption is that rational talk exchanges are cooperative and are therefore governed by a Cooperative Principle (CP) and conversational maxims, for which he suggested the following tentative formulations (Grice, 1975, pp. 45–46):

##### *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.

##### *Maxims of quantity*

1. Make your contribution as informative as is required (for the current purposes of the exchange).
2. Do not make your contribution more informative than is required.

##### *Maxims of quality*

Supermaxim: Try to make your contribution one that is true.

1. Do not say what you believe to be false.
2. Do not say that for which you lack adequate evidence.

##### *Maxim of relation*

Be relevant.

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8. Jary (2013) proposes a further distinction between material and behavioral implicatures.

*Maxims of manner*

Supermaxim: Be perspicuous.

1. Avoid obscurity of expression.
2. Avoid ambiguity.
3. Be brief (avoid unnecessary prolixity).
4. Be orderly.

While the maxims are cast as imperatives aimed at speakers, the key idea is that speakers who are rational and want to communicate will in general abide by these standards, so a hearer can rationally have corresponding presumptions about the speaker's utterances (Bach, 2006, pp. 24–25; Sbisà, 2006, p. 234). To be more specific, the claim is that hearers can reasonably assume that rational speakers will attempt to cooperate and that rational cooperative speakers will try to make their contribution truthful, informative, relevant and clear, *inter alia*, and these expectations should therefore guide the interpretation of utterances.

Grice suggested that an addressee can infer the presence of an implicature when such expectations are not met or appear not to be met, on the assumption that the speaker is, appearances notwithstanding, attempting to be cooperative. His general schema for working out implicatures is:

He has said that *p*; there is no reason to suppose that he is not observing the maxims, or at least the CP; he could not be doing this unless he thought that *q*; he knows (and knows that I know that he knows) that I can see that the supposition that he thinks that *q* is required; he has done nothing to stop me thinking that *q*; he intends me to think, or is at least willing to allow me to think, that *q*; and so he has implicated that *q*. (Grice, 1975, p. 50)

Since addressees can infer implicatures, speakers can take advantage of their ability, Grice claimed, conveying implicatures by exploiting the maxims. For example, what Amelia says in (1) seems to violate the maxim of relation, given that it does not answer Benjamin's question. But if one could assume that Amelia has implicated that she is not having cake, her communicative action (her utterance) would live up to Benjamin's expectations after all. Other things being equal, this means that it is reasonable to take Amelia to have so implicated.

In general for Grice,

what is 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. (Grice, 1989b, p. 86)

### 3.2 Problems with Grice's Maxims

Most work in linguistics on implicatures assumes that this account is correct in its broad outline, but wrong in the specifics of the pragmatic principles.<sup>9</sup> The main problem is that the maxims do not imply any particular procedure for deciding what is implicated. One reason is that the demands that they place on the speaker may clash, as Grice noted, and the maxims provide no guidance about how to proceed when they do. Grice later suggested that quality is in a category above the other maxims: so, for example, quality is a precondition for quantity because "[f]alse information is not an inferior kind of

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9. Conversely, the majority of work on conversational implicatures in philosophy of language has been within Grice's framework or reacting against it, with little reference to the development of linguistic pragmatics.

information; it just is not information" (Grice, 1989a, p. 371).<sup>10</sup> Even if quality does have this special status, there are still many other possible clashes between the other maxims. A second problem is that the maxims may indicate that an implicature exists without providing any guidance on what it is. In Grice's working-out schema, there is a leap that is unconstrained by the maxims to the introduction of the implicature, *q*, in the step "he could not be doing this unless he thought that *q*." This can be seen in Grice's analyses of both metaphor and irony as flouting (i.e., blatant violation) of quality maxims. As literal statements, (2) above and the first sentence in (7) would both be false.

(7) This book is a Toyota. The publisher should recall it, issue an apology and fix the parts that endanger the historical record. (Robert S. Norris, commenting on a history book, in Broad, 2010)

So both (2) and (7) violate (or seem to violate) the first maxim of quality. To preserve the assumption that the Cooperative Principle is in force, the hearer may assume that there is an implicature. But that is as far as the maxims take us. Although the same maxim is violated in the same way in both cases, the figurative meaning conveyed in the two cases is related in a very different way to the content of the words uttered, and the explanation for this has to be sought beyond the maxims (Wilson & Sperber, 1981, pp. 159–160).

A fundamental problem is that it is unclear whether the list of maxims is complete. Grice suggested that more could be added (Grice, 1989b, p. 273). It is crucial to know when this would be justified; otherwise we could add a maxim to deal with each new phenomenon or each utterance, an obviously ad hoc procedure (Sperber & Wilson, 1986, p. 36). Conversely, some of the maxims may be redundant. A properly formulated maxim of relation might account for implicatures due to the oversupply of information, making the second quantity maxim unnecessary (Grice, 1989b, p. 34). Finally, the formulation of several of the maxims is worryingly vague, particularly the maxim of relation, as Grice noted:

Though the maxim itself is terse, its formulation conceals a number of problems that exercise me a good deal: questions about what different kinds and focuses of relevance there may be, how these shift in the course of a talk exchange, how to allow for the fact that subjects of conversations are legitimately changed, and so on. (Grice, 1975, p. 46; see also Grice, 1989a, pp. 371–372)

For a more detailed critique of Grice's theory, see Wilson and Sperber (1981). For general discussion, see Levinson (1983, p. 97ff.); Sperber and Wilson (1986, pp. 33–38); Grice (1989b, pp. 369–372); Neale (1992, pp. 520–541).

### 3.3 Problems with the Cooperative Principle

The Cooperative Principle has also been criticized, with Kasher and Sperber and Wilson arguing that cooperation is not necessary for communication (Kasher, 1976, pp. 201–202; Kasher, 1982, pp. 38–39; Sperber & Wilson, 1986, pp. 161–162; Sperber & Wilson, 1995, pp. 267–268). The CP takes cooperative activities to be those that have some purpose or direction that is shared or at least accepted by the participants. There is a great deal of communication that may fall outside of such situations, as Grice discussed in later work (Grice, 1989b, pp. 368–370), including legal interviews and cross-examination, where the aims of the questioner and the person subjected to questioning are largely (and perhaps entirely) disjoint. There are also one-off communicative

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<sup>10</sup> Although this is correct, it does not entail a maxim of truthfulness; see Wilson and Sperber (2002).



interactions with no obvious shared purpose or direction, as when someone tells a stranger to get out of her way in the street, or to be quiet at a concert.

Some potential implicatures don't go through in some uncooperative (or minimally cooperative) situations, a fact that might be taken to vindicate the CP (as Levinson, 1983, p. 121, takes it to do), since it suggests that cooperation is necessary for implicatures. In other situations, a response like the defendant's "Not many" in (8) would implicate that the action or event in question had occurred on at least some occasions:

(8) Counsel for the prosecution: On many occasions?

Defendant: Not many.

C: Some?

D: Yes, some. (Levinson, 1983, p. 121)

Here, in the adversarial context of a cross-examination, it cannot safely be assumed that the defendant is committed to more than she actually says. Hence the follow-up question, which would be unnecessary in a more cooperative situation.

However, there is no general bar on implicatures in non-cooperative (or minimally cooperative) situations. In some circumstances an interrogator could utter (9) and succeed in implicating that the prisoner will soon be executed:

(9) Enjoy your cigarette! It's the last one you'll ever have.

As components of what a speaker intentionally and openly conveys, implicatures only arise from genuinely communicative actions. These might be called cooperative in a much weaker sense (Levinson, 2006, p. 4; Allott, 2008, pp. 15–16), in that they are intended to be interpretable by the addressee. But given the historical importance of Grice's Cooperative Principle to discussions of implicature, use of the term in this weaker sense is likely to confuse.

What makes it possible to express and infer implicatures (and, arguably, to communicate at all) is that speakers have an interest in being understood. Since speakers are more or less rational beings, they can be expected to choose means that they believe will serve their current purposes, and therefore hearers can rationally have expectations which, as discussed in section 3.1, are crucial in coordinating on utterance content, including implicatures. For implicatures, cooperation may be dispensable; rationality is essential.

### 3.4 Linguistic Pragmatics Since Grice

Grice's theory aimed to show how implicatures could in principle arise. In contrast, work in linguistic pragmatics has attempted to model their actual derivation (Sperber & Wilson, 1986, p. 32; Carston, 2002, p. 108), albeit at a rather high level of abstraction: theories are couched in terms of principles or maxims and the heuristics that implement them, as is common in modern linguistics and cognitive science more generally, and not (so far) in terms of lower-level brain properties such as neural activation patterns.

The best-known research programs in pragmatics are the neo-Gricean school and work on communication in relevance theory. Given the need for a cognitively tractable decision procedure, both propose a system with fewer principles than Grice's. Neo-Gricean work (e.g., Horn, 1972; Gazdar, 1979; Atlas & Levinson, 1981; Horn, 1984; Levinson, 2000; Atlas, 2005) attempts to reduce Grice's array of maxims to just two (Horn) or three (Levinson), while Sperber and Wilson's relevance theory rejects maxims and the CP and proposes that pragmatic inference hinges on a single communicative principle of relevance (Sperber & Wilson, 1986; Sperber & Wilson, 1995). Some other

theorists have tried to explain some generalized conversational implicatures as integrated with the grammar (e.g., Chierchia, 2001). There are also a few who retain a more specifically Gricean view (e.g., Geurts, 2010).

### 3.5 Neo-Gricean Pragmatics

Neo-Gricean accounts of implicatures claim that generalized implicatures are generated by pragmatic principles that pull in opposing directions: towards saying as much as one (truthfully) can, and towards saying as little as possible. These tendencies were labelled the Q- and R-principles by Horn, who argued that the Q-principle (which was inspired by Grice's first maxim of quantity) is aligned with the needs of the hearer, lowering his processing costs, while the R-principle lowers the speaker's production costs.

Levinson (2000) also has a Q-principle but introduces a distinction between an I-principle (inspired by Grice's second quantity maxim) which governs how much information is produced, and an M-principle (descended from Grice's manner maxims) which mandates the use of high-cost, unusual ("marked") expressions to describe unusual situations.

*Q-Principle* (Levinson, 2000, p. 76)

Do not provide a statement that is informationally weaker than your knowledge of the world allows.

*I-Principle* (Levinson, 2000, p. 114)

Produce the minimal linguistic information sufficient to achieve your communicational ends.

*M-Principle* (Levinson, 2000, p. 136)

Indicate an abnormal, nonstereotypical situation by using marked expressions that contrast with those you would use to describe the corresponding normal, stereotypical situations.

Neo-Griceans claim that the principles mandate certain heuristics that guide utterance interpretation:

*Q-heuristic*: What isn't said, isn't.

*I-heuristic*: What is simply described is stereotypically exemplified.

*M-heuristic*: What's said in an abnormal way isn't normal. (Levinson, 2000, pp. 31–33)

For example, (6) above would be analyzed as a case of I-implicature. The speaker is not explicit about the relation between Paul and the book, so the hearer is licensed to infer a relation, helped by the context (e.g., the most salient or most plausible relation in the context). The implicature of (5) discussed above would be analyzed as a Q-implicature, on the basis that the speaker should have said that the house was John's own if she knew that to be the case. (Although it could arguably be an M-implicature, where the choice of a marked expression indicates a non-stereotypical situation.)

Neo-Gricean theory has been criticized for making an artificial categorical distinction between generalized and particularized implicatures and for failing to account for the latter, and for conflating implicature resolution with pragmatic inference that contributes to the proposition expressed (see section 2.3). Another criticism is that the Q-principle is implausibly strong: speakers do not generally make the strongest statements that they can. Instead, as Grice suggested, they seem to aim to make their statements as strong as required for current purposes (Green, 1995).

However, neo-Gricean pragmatics has been influential in work on implicatures in experimental pragmatics and formal pragmatics, two areas that have been very active in recent years. (Potts, 2013 is a useful introduction to formal pragmatics. For experimental pragmatics, see section 5.) A great deal of formal work on pragmatics focusses on generalized implicatures. Some follow the lead of Hobbs et al. (1993) in modeling pragmatic inference with non-monotonic logic, i.e., logical systems where valid inferences are defeasible defaults. (A famous example of a non-monotonic inference is that from Tweety is a bird to Tweety flies, which can be defeated by learning that Tweety is a penguin.) Those who do such work argue that default rules are well suited for modeling generalized implicatures, or at least those which depend on the presence of certain lexical items or constructions. For example, the presence of *some*, as in (10a), often conveys something of the form in (10b):

- (10a) Some of the food was good.  
 b) Not all of the food was good.

Such examples have been a focus of research since Horn (1972) introduced them.<sup>11</sup>

### 3.6 Relevance Theory

Relevance theory provides a detailed account of communication grounded in a more general theory of cognition. It defines relevance as a property of inputs to cognitive systems such that, other things being equal, an input is more relevant the more positive cognitive effects it has and the less processing effort<sup>12</sup> is required to arrive at those effects<sup>13</sup>. The general claim about cognition, the Cognitive Principle, is that it is relevance-seeking:

*Cognitive Principle of Relevance:*

Human cognition tends to be geared to the maximization of relevance.

Utterance interpretation falls under this principle given that it is a cognitive activity. But communicative stimuli are special, because they are intentional clues offered by the speaker. Sperber and Wilson adopt Grice's idea that utterances raise certain expectations in the hearer which guide the hearer's interpretation of the utterance. They point out that every utterance is competing for the hearer's attention and other cognitive resources with other stimuli, and they argue that this mandates the (very strong) Communicative Principle:

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11. Or rather, reintroduced them. John Stuart Mill discussed an similar example, as Horn (1989, pp. 212) notes. On the pre-Gricean history of theorizing about implicatures, see also Horn (1996).

12. The phrase "processing effort" refers to actual effort, not to felt or represented effort (Allott, 2013, pp. 66–68). It is assumed in work on heuristics to relate to "searching for more information, performing more computation, or taking more time," factors which typically, but not necessarily, go together (Gigerenzer & Brighton, 2009, p. 109). It may ultimately come down to energy expenditure.

13. As this formulation implies, relevance, like virtue, is both classificatory and gradable: some inputs are more relevant than others, but any input with positive cognitive effects obtainable with finite processing effort is relevant to some degree (Sperber & Wilson, 1986, pp. 39, 79–80). Comparative relevance is more important in the theory than absolute relevance, since relevance theory assumes that in general there are many relevant inputs which could be processed and cognitive systems have to choose between them.

*Communicative Principle of Relevance:*

Every act of overt communication conveys a presumption of its own optimal relevance.

That is, by the act of making an utterance to the addressee, the speaker issues a (fallible) guarantee that the utterance will be optimally relevant, where that is defined as not only worth processing but moreover the most relevant utterance that the speaker was willing and able to make. Sperber and Wilson further argue that this makes it reasonable for the hearer to follow a particular trial-and-error comprehension heuristic, generating candidate interpretations in order of accessibility and accepting the first that is optimally relevant. (See Wilson & Sperber, 2004; Wilson, 2009; Allott, 2013, for more discussion of the framework.)

Relevance theory's principles are fundamentally different in kind from Grice's maxims. Maxims are supposed to guide behavior, while the Cognitive and Communicative Principles are purely descriptive laws or generalizations: "Communicators need no more know the principle of relevance to communicate than they need to know the principles of genetics to reproduce" (Sperber & Wilson, 1986, p. 162).

Where Grice had one distinction between what is said and what is implicated, relevance theory has two: first between what is linguistically encoded and what is pragmatically implied and inferred, and secondly between what is part of explicit utterance content and what is part of implicit utterance content. Implicatures fall on the latter side of both distinctions: they are implicit utterance content that is pragmatically implied/inferred. Indeed, they are defined in relevance theory as propositions communicated by an utterance but not explicitly (Sperber & Wilson, 1986, p. 182; Sperber & Wilson, 2005, p. 480).

As in Grice's theory, pragmatic inference is inference to the best explanation for the utterance, but relevance theory postulates that the input to that process is what is linguistically encoded by the utterance and the fact that it has been uttered (not, as Grice thought, the fact that a certain proposition had been stated in a certain way), and the output of the inference is a complete interpretation of the utterance, including both the proposition expressed and any implicature or implicatures of the utterance.

Like much recent work in pragmatics, relevance theory stresses the extent to which pragmatic inference influences the proposition expressed. It therefore offers a different analysis of a number of pragmatic influences on utterance content which have been classed by other theorists as implicatures. Examples include what is expressed by use of the word and beyond its logical meaning (Carston, 2002, pp. 222–264), lexical narrowing (e.g., the use of *man* in "Churchill was a man", meaning a certain type of man) (Wilson & Sperber, 2004, pp. 617–618), and the relation expressed by the use of genitive -s as in (6) above (which are all categorized by Levinson as implicatures); and lexical broadening (Carston, 1997; Sperber & Wilson, 1998; Wilson & Sperber, 2004, pp. 618–620), including metaphor (Sperber & Wilson, 2008) as in (7), disagreeing with Grice's implicature analysis of metaphor. (On this "direct expression" view of metaphor, see also Bezuidenhout, 2001.)

### 3.7 Implicated Premises and Implicated Conclusions

Another important relevance-theoretic innovation is the division of implicatures into two categories, implicated premises and implicated conclusions (Sperber & Wilson, 1986, pp. 194–195). Consider (11):

- (11) Benjamin: Would you like a glass of this Chilean red?  
 Amelia: I don't drink cheap wine.

Amelia implicates both a refusal of Benjamin's offer and that the wine that he is offering her is cheap (to a certain degree). The refusal is an implicated conclusion of her utterance; the proposition that the wine is cheap is an implicated premise. The key idea here is that the implicated premise or premises of an utterance and the proposition expressed (here, that Amelia does not drink wine of a certain degree of cheapness) taken together logically support the implicated conclusion. One has to assume that Amelia thinks that the wine is cheap in order to understand her utterance as implicating a refusal. Given that Amelia openly intended this, she has implicated this proposition. (But see Recanati, 2004, pp. 48–49, for a different view.)

#### 4. Properties of Conversational Implicatures

Conversational implicatures typically have a number of interesting properties, including calculability, cancelability, nondetachability, and indeterminacy. These properties can be used to investigate whether a putative implicature is correctly identified as such, although none of them provides a fail-safe test. A further test, embedding, has also been prominent in work on implicatures.

##### 4.1 Calculability

The most important property of implicatures is calculability: they can be worked out rationally, since they are implied and inferred, and not linguistically encoded and decoded. As we have seen, the addressee can—in principle, and often in practice—infer what the speaker intended to imply, taking into consideration the sentence uttered and the circumstances in which it was uttered, given that the utterance seems not to meet expectations, and that taking a certain implicature to be present yields an overall interpretation of the utterance which is nonetheless suited to the needs of the addressee and the situation. This much is generally agreed. (An exception is Davis, 1998, 2014. See Green, 2002 for discussion.)

Calculability was for Grice a defining property of conversational implicatures:

the final test for the presence of a conversational implicature had to be, as far as I could see, a derivation of it. One has to produce an account of how it could have arisen and why it is there. (Grice, 1981, p. 187)

Calculability seems to be a necessary feature of conversational implicatures, but it is not a sufficient condition for a piece of utterance content to be a conversational implicature. Calculability is a property of pragmatic inference, and such inference is involved in recovery of direct utterance content in at least three ways.

First, the linguistically encoded meaning of words uttered is at most “put into play” by their being uttered. The hearer still has to infer that this meaning is being intentionally conveyed. Second, from the point of view of the hearer, working out which encoded sense of an ambiguous expression is intended requires inference governed by pragmatic principles (Grice, 1957, p. 387; Katz, 1972, pp. 449–450; Walker, 1975, pp. 156–157; Wilson & Sperber, 1981, pp. 156–159), as for example in (12), where the hearer has to infer whether a sporting implement or a small mammal is meant, and whether the purchase or the decision took place last Friday.

(12) Mary decided to buy a bat last Friday.

Third, there are non-implicated, non-encoded parts of utterance content such as, in (13), the intended referent of the indexical pronoun “he,” the intended reference time, and what the speaker is stating that the person in question was too tall for. Again, from the hearer's point of view, such things have to be inferred, but they are (by definition) not implicatures, since they contribute to the proposition expressed.

(13) He was too tall.

There is no reason to think that these types of inference are not governed by pragmatic principles. So calculability is not restricted to conversational implicatures, but is a property of pragmatically inferred utterance content in general (Carston, 2002, p. 185).

## 4.2 Cancelability

Cancelability is another property of implicatures (or rather, most implicatures) that reflects the fact that they are pragmatically implied and inferred and not part of the linguistically encoded meaning of the words or sentence uttered (Grice, 1961, 1975, p. 57, 1978, 1981; Carston, 2010).

There are two aspects to cancelability, explicit cancelability and contextual cancelability:

a putative conversational implicature that *p* is explicitly cancelable if, to the form of words the utterance of which putatively implicates that *p*, it is admissible to add but not *p*, or I do not mean to imply that *p*, and it is contextually cancelable if one can find situations in which the utterance of the form of words would simply not carry the implicature. (Grice, 1978, pp. 115–116)

Consider (1′):

(1′) Benjamin: Are you having some of this chocolate cake?  
Amelia: I’m on a diet. But I’m going to have some anyway.

Here the sentence added cancels the implicature conveyed by the first sentence. This is an example of explicit cancellation.

Contrast this with (1′′):

(1′′) Benjamin: Are you having some of this chocolate cake?  
Amelia: I’m on a diet. ??But I’m not on a diet.

Here the second sentence clashes with the linguistically encoded and asserted content that Amelia conveyed with her first sentence. This is highly infelicitous. In cases like this the addition of the clause attempting cancellation leads to “logical absurdity” or “linguistic offense” (Grice, 1981, p. 186), while canceling an implicature as in (1′) does not.

The other type of cancellation is contextual cancellation. An implicature that arises in one context would not arise in some others. Consider (11′):

(11′) Charlie: Is this stuff any good?  
Amelia: [Helping herself to a second glassful] I don’t drink cheap wine.

Here Amelia does not implicate what she implicated in (11) (but does implicate something else). Contextual cancellation is a rather obvious property of particularized conversational implicatures such as these.

Generalized conversational implicatures are also (mostly) cancelable, both explicitly and contextually; e.g., consider (5) above in a context in which anyone who has entered a residential building within the last 48 hours is eligible for a prize. Cancelability is a more useful test here, since for generalized conversational implicatures it is less immediately obvious whether they are part of the linguistic meaning. Their cancelability indicates that they are not.

Implicatures are cancelable because they are not part of the linguistic meaning and are inferred as part of the explanation for why the speaker said what she did in the way that she did. Inference to the best explanation is uncertain: it is “non-demonstrative” or “defeasible.” Even if the input to the inference is true—the speaker did indeed utter the sentence, in the way supposed—the conclusion of the inference may be false. The best explanation for the utterance may be a different implicature or no implicature at all. Indeed, the speaker may not even have intended to communicate; she might have been talking to herself or practicing her pronunciation.

Like calculability, cancelability is not a sufficient condition for something to be an implicature, since all types of contribution to utterance content that are pragmatically inferred and not linguistically encoded are in general cancelable (Carston, 2002, p. 138). Grice noted that cancelability applies to loose use, such as the use of “blue” to cover a shade that would normally be described as green (Grice, 1978, p. 116), and Sadock (1978) pointed out that disambiguation as with (12) above is cancelable. The same goes for other pragmatic inferences contributing to the proposition expressed (Wilson & Sperber, 1981, pp. 158–159), as in (13) above.

It seems that cancelability is also not a necessary condition for implicatures, because implicatures may be entailed by the proposition expressed (Carston, 2002, p. 138; Bach, 2006, p. 24, but see Atlas & Levinson, 1981, pp. 10–11; Neale, 1992, pp. 528–529, for an opposing view). Consider the dialogue in (14):

- (14) A: Did you know that none of *The Marriage of Figaro* is in a minor key?  
 B: What do you mean? The first aria in the fourth act of *Figaro* is in F minor! (cf. Bach, 2006, p. 24)

Here is the argument. The proposition B expresses—that the first aria in the fourth act of *Figaro* is in F minor—entails another proposition, M: that some of the opera is in a minor key. Intuitively, B’s utterance also communicates that proposition—the speaker openly intends the hearer to grasp M. Given that M is not the proposition asserted and it is meant by the speaker, then it must be an implicature.<sup>14</sup> However, given that M is entailed by the proposition B expresses, contextual cancellation is impossible and attempted explicit cancellation (as in 14’) is infelicitous:

- (14’) A: Did you know that there’s no music in the *Marriage of Figaro* in a minor key?  
 B: What do you mean? The first aria in the fourth act of *Figaro* is in F minor! ??But I don’t mean to imply that any part of *Figaro* is in a minor key.

So if this argument is right, not all implicatures are cancelable.

### 4.3 Nondetachability

To the extent that an implicature is due to the speaker’s expressing a certain proposition, the specific form of words used to express that proposition will not affect whether the implicature arises. Grice’s label for this property is “nondetachability”: such implicatures cannot be got rid of by merely rephrasing the utterance. Amelia’s reply in (1’’) has the same implicature as her reply in (1) above.

- (1’’) Benjamin: Are you having some of this chocolate cake?  
 Amelia: I’m following a strict regime where I eat only low-calorie food.

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14. Note that the argument assumes that we do not communicate all the logical entailments of propositions we assert. (See section 2.4.)

Nondetachability is neither a necessary nor a sufficient condition for implicatures, however (Neale, 1992, pp. 529, fn. 26). It cannot be necessary, because some implicatures—manner implicatures in Grice’s framework, at least—depend on the way that the speaker says what she says, and these are not detachable (Grice, 1975, p. 58). Thus the utterance in (15a) does not share the implicature of the utterance of the nearly synonymous sentence in (15b), and utterances of (16b) typically convey (weak) implicatures not carried by utterances of the truth-conditionally equivalent (16a).

(15 a) Miss X sang “Home sweet home.”

b) Miss X produced a series of sounds that corresponded closely with the score of “Home sweet home.” (Grice, 1975, p. 55)

(16 a) My childhood days are gone.

b) My childhood days are gone, gone. (Sperber & Wilson, 1986, p. 219)

Nondetachability is not a sufficient condition for implicatures, since entailments of the proposition expressed are also nondetachable. For example, rephrasing (17a) as (17b) does not detach the entailments in (17c and d):

(17 a) John ate the apple.

b) The apple was eaten by John.

c) The apple was eaten.

d) John ate something.

#### 4.4 Indeterminacy

What is implicated by a particular utterance may be indeterminate. As Grice noted, this is due to the non-demonstrative character of pragmatic inference:

Since, to calculate a conversational implicature is to calculate what has to be supposed in order to preserve the supposition that the Cooperative Principle is being observed, and since there may be various possible specific explanations, a list of which may be open, the conversational implicature in such cases will be disjunction of such specific explanations; and if the list of these is open, the implicature will have just the kind of indeterminacy that many actual implicatures do in fact seem to possess. (Grice, 1975, p. 58)

Most discussion of implicatures has ignored or abstracted away from this property, treating each utterance’s implicatures as determinate and clear.

Sperber and Wilson have argued that there is a continuum of cases, from utterances where there are a few fully determinate implicatures to utterances which convey an open-ended array of what they call weak implicatures (Sperber & Wilson, 1986, pp. 195–200; Sperber & Wilson, 2005, p. 484; Sperber & Wilson, 2008, pp. 98–103), as in their example (18):

(18) [Woman to uncouth suitor] Keep your paws off me. (Sperber & Wilson, 2008, p. 101)

The phrase *your paws* is used here to refer to the suitor’s hands, but its use also activates ideas of animal paws, clumsiness and more. By using it, the speaker suggests that the addressee is “clumsy, gross, lusting like a beast and so on” (Sperber & Wilson, 2008, p. 101). There is no particular one of these implications that the speaker intends the hearer to grasp. Rather, the addressee “is encouraged to consider at least some of them and see them as part of the speaker’s meaning” (Sperber & Wilson, 2008, p. 101); this is what makes them weak implicatures.



Weak implicatures are proposed in part to account for the well-known open-endedness of the interpretation of literary language and figurative speech (see Pilkington, 2000), but they are not confined to either (Sperber & Wilson, 2008).

#### 4.5 Embedding Test

Assertive, truth-conditional content embeds under logical operators, and embedding is therefore often used as a negative test for implicatures. On this view, if something embeds, then that is reason to think it is part of the proposition expressed and thus to doubt that it is an implicature. This is called the Scope Principle (Recanati, 1989). Grice claimed that the extra-logical meaning (given here in square brackets) conveyed by the use of *and* in examples like those in (19) is implicated.

- (19a) John got into bed and took off his shoes. [in that order]  
 b) Mary left the window open and a thief got into the house. [through the open window]

But in one of the earliest commentaries on the theory, Cohen pointed out that the richer meaning appears to embed under logical words such as *and* and *if...then* (Cohen, 1971), and this indicates that it is not implicated. It is natural to read (20) as claiming that the insurance will not pay out if Mary left the window open and a thief got into the house through that window as a result.

- (20) If Mary left the window open and a thief got into the house, the insurance won't pay out.

Because of examples like this, it is now generally agreed that some pragmatically inferred material embeds.<sup>15</sup> One reaction has been to argue that this shows that this material is part of direct/explicit utterance content and therefore not a conversational implicature (Carston 1988, 2002, chapter 3; Recanati, 1989; Wilson & Sperber, 1998). But another way to read at least some such data (advocated by Green, 1998) is as showing that some implicatures embed. If this is right, then the embedding test is not to be relied on.<sup>16</sup>

### 5. Experimental Work

Experimental pragmatics has burgeoned in recent years. (Breheny, 2011, and Phelan, 2014, are useful overviews.) Important early work by Nicolle and Clark (1999) showed that speakers' intuitions do not clearly distinguish what is implicated from what is asserted.

There has been a great deal of work on pragmatic enrichments that arise due to the speaker's use of a weaker term than another she might have used, as in (10) above, so-called "scalar implicatures." (See Noveck & Sperber, 2007, for reasons to doubt the appropriateness of the label.) Noveck (2001) found that unlike adults, pre-school children (and even some up to the age of nine) take such statements in a purely logical way, so that they treat sentences of the form *Some Xs are Ys* as compatible with "all Xs are Ys" and *might be p* as not excluding "must be p."

Two potential explanations for children's performance have been dominant. The first is that they lack knowledge of the alternatives, or at least access to them (e.g., Chierchia,

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15. As Simons (2016, p. 470, fn 4) points out, this is also, perhaps more obviously, shown by reference assignment for indexicals.

16. On pragmatically implied/inferred material that embeds, see also Simons (2016).

Crain, Guasti, Gualmini, & Meroni, 2001). The second is that they fail to take the alternatives as relevant (Skordos & Papafragou, 2016). Experimental work suggests that such inferences can be facilitated in children either by explicitly presenting the alternatives (Chierchia et al., 2001; Ozturk & Papafragou, 2014) or by increasing their relevance even when they are not explicitly present (Papafragou & Musolino, 2003; Skordos & Papafragou, 2016).

Some related work shows that pragmatic inferences that exploit lexical scales such as <some, all> and <may, have to> are no easier for children than those which rely on contextual scales, such as the implicature in (21) that B hasn't read the whole book (Papafragou & Tantalou, 2004).

(21) A: Have you read The Minimalist Program?

B: I've read the first chapter.

Other studies have found that contextual inferences are easier than lexical ones (Katsos & Smith, 2010; Barner, Brooks, & Bale, 2011). Lexical scales appear to be of less importance in processing than previously thought.

There has also been experimental work on the development of the ability to comprehend "relevance" implicatures, that is, implicatures like those in (1) and (11) above that would be explained in Grice's theory by his maxim of relation. These are also difficult for young children, but they can also be made easier, to the extent that some are grasped by children as young as three years old (Schulze, Grassmann, & Tomasello, 2013).

## 6. Modified Occam's Razor and Pragmatic Inference

Implicatures and the division between directly expressed and intentionally implied utterance content are mainstays of theorizing about meaning, as they have been since Grice's William James lectures, allowing a theoretical unification of apparently diverse types of utterance content, including some figurative speech, indirect answers to questions, and more. However, as we have seen, a number of phenomena that Grice and early theorists treated as implicatures would now be treated by many as pragmatic enrichment contributing to the proposition expressed.

Perhaps, then, the greatest value of Grice's postulation of implicatures is the attention that it drew to pragmatic inference and the division of labor between linguistic semantics and pragmatics in theorizing about verbal communication. The existence of implicatures and other purely pragmatic elements of utterance content implies that the linguistic meaning of words and sentences is simpler than one might otherwise think. It is not the case that everything that is conveyed by an utterance of a sentence is due to the encoded meaning of the words used or the way that they are put together. This implies a methodological principle which Grice called Modified Occam's Razor: "Senses are not to be multiplied beyond necessity" (alluding to William of Ockham's "Entities are not be multiplied beyond necessity"). Explanations in terms of pragmatic inference are more parsimonious than ones which postulate linguistic ambiguity, since they can be explained by general pragmatic principles, while the additional linguistic sense or senses are not independently motivated.

Grice argued in this vein that the words *and*, *or*, *if*, *some*, and *all* are identical in meaning to the operators of classical logic and that the richer meanings conveyed in examples like (19) above (e.g. 'and then'; 'and as a result') are implicated. Although many have since argued that such examples involve enrichment of the proposition expressed rather than implicature, Modified Occam's Razor still applies as long as the enrichment is governed by general pragmatic principles.

**Further Reading**

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