The role of Gricean determinacy and the strength condition in the relevance theory for interpreting implicatures

O papel da determinação e da condição da força na teoria da relevância para a interpretação das implicaturas griceanas

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ABSTRACT

The notion of implicature has been a matter of discussion since Grice put it forward. He proposed a schema to explain how implicatures are generated and inferred, but the key condition it contains has been surprisingly overlooked. Davis detected it and named it determinacy, though for him this requirement raises several problems that make the whole Gricean theory of implicature untenable. I claim that, although the determinacy condition is flawed, it still captures a crucial mechanism of how implicatures are interpreted. I attempt to recover this requirement under the relevance theory approach and show that, unlike the determinacy condition, the strength condition does not face the problems Davis formulates.

Keywords: implicature, determinacy, strength, Cooperative Principle, principle of relevance, Gricean theory, relevance theory.

RESUMO

A noção de implicatura tem sido objeto de discussão desde que Grice a apresentou. Ele propôs um esquema para explicar como as implicaturas são geradas e inferidas, mas a condição-chave que ela contém foi surpreendentemente ignorada. Davis a detectou e chamou de determinação, embora para ele esse requisito suscite vários problemas que tornam insustentável toda a teoria griceana da implicatura. Afirmo que, embora a condição de determinação seja falha, ela ainda captura um mecanismo crucial de como as implicaturas são interpretadas. Tento recuperar esse requisito sob a abordagem da teoria da relevância e mostro que, diferentemente da condição de determinação, a condição de força não enfrenta os problemas que Davis formula.

Palavras-chave: implicatura, determinação, força, Princípio Cooperativo, princípio da relevância, teoria griceana, teoria da relevância.

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1 Introduction

Implicatures are an everyday phenomenon in verbal communication. Speakers naturally expect hearers to recognize the presence of implicatures conveyed by them. However, there is a striking feature of implicatures that distinguishes them from other forms of verbal communication: implicatures are implicitly communicated. This prompts the question about what mechanism allows speakers to handle implicatures. Let's examine the following situation:

(1) Paul: Do you know where Frank might be?
(2) Martha: There is a red bike parked outside.

Let's suppose Paul, Martha and Frank are co-workers. Frank has a flashy red bike and both Martha and Paul are aware of it. Martha has opted for providing the information requested by means of an implicature, namely that Frank is probably in the building. Noticing that a red bike does not tell by itself where Frank is, Paul spontaneously establishes a connection between Martha's utterance and the fact that she is willing to answer his question and the hypothesis pops up: Frank is in the building.

Paul took for granted that Martha was not deceiving him or saying something completely out of topic. Hearers usually presume that speakers will participate in a conversation within a certain frame of expectations. Grice identified this general tendency and famously claimed that participants in a conversation are *cooperative*: they observe what he called the *Cooperative Principle*. In addition, he proposed four categories of maxims: *Quality* (truthfulness), *Quantity* (informativeness), *Relation* (relevance) and *Manner* (clarity) (Grice, 1989). Contrary to Gricean theory, Dan Sperber and Deirdre Wilson contend that the Cooperative Principle – and its associated maxims – is not the general principle governing verbal communication but what they call the *principle of relevance*, which gives the name to their *relevance theory* (Sperber and Wilson, 1995).

But these general principles, due to their broad nature, say nothing about implicatures. A specific account is needed if we intend to study this phenomenon with due attention. Grice (1989) provided a schema on how implicatures are generated and inferred and, particularly, a condition that captured the key mechanism to interpret them. Wayne Davis named this condition *determinacy* in his monographic book about the notion of *implicature*, but after a detailed analysis he concludes that this requirement fails systematically and, given its prominent role in the Gricean theory of implicature, Davis declares that the whole theory is "a near-complete failure" (1998, p. 1). Despite being a book about Gricean theory, the relevance theory receives similar considerations, for it is also a theory based on a general principle and inherits problems from Grice.

In this paper, I first examine the analysis of the determinacy condition by Davis through a critical appraisal and revisit three main problems in Gricean theory that arise from this condition. Even though Davis' arguments against the determinacy condition are nearly decisive, I disagree with his complete rejection because determinacy captures a key mechanism of how implicatures work. In the next section, I attempt to recover this theoretically important notion under the relevance theory approach and reformulate it as the *strength condition*. Then, I consider the same three problems and show that the strength condition does not entail the negative consequences of the determinacy condition.

Although the phenomenon of implicature is widely accepted and has been put to many different uses, the theoretical aspects of this notion are still under debate. Some recent attempts to refine it emphasize certain features such as *cancelability* (Blome-Tillmann, 2013; Mayol and Castroviejo, 2013), which can be an adequate way to test *implicature strength* (Kapogianni, 2018); others conceive implicatures as the product of negotiated conversational inferences between speakers and hearers (Elder and Haugh, 2018); and some conduct experiments in order to test the *interpretation strength* of implicatures and other levels of intended meanings (Sternau *et al.*, 2015). But the crucial mechanism that determinacy captures has been overlooked.

2 The determinacy condition in Grice

In 'Logic and Conversation', Grice (1989) provides a three-clause schema for a speaker to generate a conversational implicature:

> *A man who, by (in, when) saying or 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, 1989, p. 30-31).*

Davis terms clause (1) *cooperative presumption*; clause (2), *determinacy*; and clause (3), *mutual knowledge* (1998, p. 13). In addition, implicatures must be capable of being worked out or *calculated* by the hearer, who can rely on contextual data such as the meaning of the words uttered, the identification of references and background information, among other data (see Grice, 1989, p. 31). But a thorough examination of the Gricean three-clause schema suggests, I argue, that the deter-

minacy condition is the most fundamental one concerning implicatures. The cooperative presumption is a general norm in verbal communication and does not tell us much about implicatures. Mutual knowledge hinges on (2) and, though it is necessary that the speaker considers the audience competent enough, it doesn't explain the mechanism by which implicatures work.

Let's bring back the 'red bike' example. Martha's utterance provokes a mismatching between the expectations raised by the purpose of the conversation and her contribution to it. In Gricean terms, she is blatantly *violating* the maxim of Relation. But there is no reason why she would not be observing the Cooperative Principle, so she must be making a contribution somehow. In this regard, implicatures enable speakers to contribute cooperatively by means of suggesting implicitly a propositional content. Martha's believing that Frank has arrived is the supposition that makes her saying (that there is a red bike parked outside) consistent with the presumption that she is observing the Cooperative Principle. By means of a conversational implicature, she is making sense of what apparently had no sense.

Davis detects the crucial role of the determinacy condition in Gricean theory. However, a careful analysis shows, he claims, that this requirement fails to determine the implicature that the speaker has generated, because in most cases there are many alternative suppositions that make the speaker's utterance consistent with the presumption that she is observing the Cooperative Principle (Davis, 1998, Chapter 3; Davis, 2005, Chapter 8). As the three-clause schema states, the determinacy condition requires the supposition that the speaker believes that *q*; unless a single supposition can be determined, namely that the speaker believes that *q*, the condition will not be satisfied.

Let's see three significant problems that arise from various failures of the determinacy condition that Davis imputes to Gricean theory.

Relevance implicatures. Explicit versus implicit communication towards cooperative appropriateness

Davis argues that there is a determinacy problem concerning what he calls *relevance implicatures* (1998, Chapter 3.5), which are closely related to the accepted purpose of the conversation. In fact, the examples of Group A in 'Logic and Conversation' anticipate this kind of implicatures, where, as Grice notices, "the unstated connection between *A*'s remark and *B*'s remark is so obvious" that there is an unequivocal interpretation (Grice, 1989, p. 32):

(3) *A*: I am out of petrol.
(4) *B*: There is a garage round the corner.

B could not be making that conversational contribution (4) unless she thinks that in that garage *A* can buy petrol. Da-

vis objects that, for example, if we suppose that *A* and *B* have a secret code by which *B*'s utterance means that she has a can of gasoline in her trunk, *B* would have uttered (4) not because she intended to communicate that in the garage *A* can buy petrol, but because *B* has a can of gasoline in her trunk (1998, Chapter 3.5).

Nonetheless, from my point of view, Davis' objection is ill-founded for two reasons. First, Davis' modification of the example can be explained by Grice simply because the secret code is part of the background data both speaker and audience are aware of, so the audience would be able to work it out. Second, because (4) encodes, not implicates, (*p*) 'I have a can of gasoline in my trunk.' There is no implicature at all. It is not that *B* implicates (*p*). *B*'s utterance is just a way of saying (*p*) not by interpreting (4) according to its meaning in English but doing so according to a secret code. There is no inference required but a decoding process.

Davis attempts to show that there are alternative suppositions – other than 'in that garage *A* can buy petrol' – consistent with the determinacy condition. If that were so, the condition would be *over-satisfied* and it would not purport the function it was designed for, that is, to constrain the working-out process to one supposition. However, and contrary to Davis' opinion, the request for information is so specific that there is just one supposition that maintains the speaker in alliance with the maxim of Relation and, therefore, with the Cooperative Principle. Although Davis' criticism is flawed, there is something right about it: it is not the Cooperative Principle that guides the audience to that single supposition. This is a deeply important issue in Gricean theory. What does the job is, following Sperber and Wilson (1995), the principle of relevance, which captures the fact that the contribution expected from the speaker must be in the form of a very specific piece of information (that is, where can *A* find petrol). But let's leave this matter for later consideration.

Another problem derives from the Cooperative Principle (not detected by Davis). To implicate something does not seem to be a cooperative attitude. It would be much more straightforward to provide the information by means of an explicit utterance. In the process of working out an implicature, the audience is forced to assume the unnecessary risks (ambiguity, obscurity, lack of shared information and so on) that accompany this kind of inferences; such risks are absent (or significantly diminished) in an explicit utterance. These remarks suggest a conflict between the Cooperative Principle and its alleged role in guiding the generation and inference of implicatures.

Literal versus figurative speech towards cooperative appropriateness. The case of irony

Literal speech seems to be what fills most of our daily conversations, but figurative speech is very present too.

Speakers often *exploit* a maxim[2] for the purpose of generating a conversational implicature and, in particular, many of these cases involve using figures of speech. But when is literal or figurative speech required in order to fulfill the determinacy condition? We will follow Davis' argument through an irony example of his own – to choose a frequent figure of speech that serves as a representative case – and, after that, I shall make some remarks.

Sam, who has gone hunting, is caught in the middle of a blizzard and ironically shouts:

(5) It is a fine day!

According to Grice, one would think that Sam has flouted the maxim of Quality (truthfulness) and in fact is believing the contrary of what he has said, which is precisely what he implicates – that 'it is an awful day'. Nonetheless, Davis contends that, in these cases, the belief that reconciles the speaker with the Cooperative Principle is taken as given. Sam could have made a cooperative contribution if he were speaking literally, meaning and believing what he has said. Therefore, it is not the Cooperative Principle that required Sam to believe that 'it is an awful day' (Davis, 1998, Chapter 3.3; Davis, 2005, Chapter 8). Davis concludes: "The determinacy requirement will always fail in the case of irony and other figures of speech, because S [sc. the speaker] *could* have been speaking literally" (1998, p. 65). And the same argument applies vice versa: the audience might think the speaker is being literal when in fact he is using a figure of speech (we could have taken Sam's utterance seriously, but he was being ironic)[3].

Consequently, neither speaking literally nor figuratively is required and the determinacy condition fails. Davis argues that in the Gricean frame it is not possible to determine the supposition that is required by the Cooperative Principle. There are many candidates that fit equally well, so the determinacy condition fails to *determine* the *specifically* required candidate.

Even though I see no Gricean defense here, Davis' conclusion is both ambitious and alarming, because he purports to extend it to any theory based on general principles governing verbal communication[4]. There is no way to distinguish when speakers' contributions are expected to be in the form of literal speech rather than figurative speech or vice versa, which is a strong claim and a matter of concern. Davis offers a way out to this problem: implicatures are a matter of *speaker intentions*[5]. Thus, whether Sam is being literal or ironic depends on his intention. However, Davis' arguments preclude the possibility that other elements, such as contextual data, might tend to confirm if a certain supposition – an implicature – makes sense of the speaker's utterance. As a matter of fact, most people = even the bravest hunters – don't like being caught in a blizzard and don't think that it is a weather state to be considered "a fine day". It is reasonable to endorse these contextual assumptions in the working-out process that the speaker is being ironic[6]. Nevertheless, Davis shows that Grice's determinacy condition does not constrain enough whether the speaker is being literal or figurative.

Indeterminate implicatures. The case of metaphor

Peter is having some money issues and his friend Mary tells him:

(6) You are now in troubled waters, but they will calm down, you'll see.

Following the Gricean schema, Mary could not be asserting (6), as it is something manifestly false: Peter is not physically in troubled waters. In fact, Mary is exploiting the maxim of Quality to generate a conversational implicature. Having said that, what does Mary implicate? Well, she might implicate that (a) 'Peter is going through some economic difficulties now, but they will eventually go away'. Or maybe she is implicating that (b) 'though Peter is depressed now, he is going to feel better in the future'. However, she can also implicate that (c) 'Peter's problems will require painstaking efforts to be

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[2] *Exploit a maxim* could be described as deliberately violate a maxim in order to generate a conversational implicature (see Grice, 1989).

[3] It should be clear that the problem we are examining is not a problem concerning how the audience recognizes the ironic intention of the speaker, that is, how a high pitch of voice, a rise and fall of intonation, a challenging inflection, to name some typical elements, work as hints that the audience recognizes as an ironic intention. This is a genuine and interesting problem but a different one from justifying if verbal irony – or any other figure of speech – is consistent with Gricean theory – or any other theory – and, particularly, with the determinacy condition. In this paper, we take for granted that verbal irony is used and recognized by speakers.

[4] Davis denies that *general psychosocial principles* such as the Cooperative Principle or any other, such as the principle of relevance, can account for the generation and working out of implicatures (see 1998, p. 3, 47, 132, to choose some). Davis claims that "the Principle of Relevance does not enable us to predict what a speaker believes or implicates" (1998, p. 103) and "the view that implicatures are derivable from general psychosocial principles is completely untenable" (1998, p. 189).

[5] It is a leitmotiv throughout his book: "we have to know the speaker's intentions to know what the speaker has implicated" (Davis, 1998, p. 8); "What a speaker means or implies is determined by what the speaker intends" (Davis, 1998, p. 114).

[6] Underlying the question about the mechanism that constrains the generation and inference of implicatures there is another problem: what is the source that confers the content of implicatures? But that is a line of investigation I hope to explore in the future. The primary role of *speaker intention* Davis attributes to the notion of implicature and his controversial interpretation of Gricean theory are interestingly discussed in the notable reviews of Davis' book (1998) by Saul (2001), Green (2002) and Rysiew (2000). In particular, Jennifer Saul (2002; 2010) sets out several arguments which emphasize the role of the audience while diminishing the centrality of speaker's intentions that have influenced my commentaries on Davis.

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overcome'. So, which of these implicata – (a), (b), (c) or maybe others – is the *one* conveyed by Mary? Which of them corresponds to the belief that makes Mary's saying (or making as if to say) that (6) consistent with the presumption that she is observing the Cooperative Principle? (6) is clearly false, so, according to the determinacy condition, a determinate belief is required to reconcile Mary with the Cooperative Principle (and the maxim of Quality).

The problem is that, in these cases, the possible candidates for implicatum – (a), (b), (c) or maybe others – are equally valid because they make consistent the presumption that the speaker is observing the Cooperative Principle. There is no determinate implicatum. Grice advanced this phenomenon:

> Since to calculate a conversational implicature is 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 implicatum in such cases will be a disjunction of such specific explanations; and if the list of these is open, the implicatum will have just the kind of indeterminacy that many actual implicata do in fact seem to possess (Grice, 1989, p. 39-40).

Although Grice points at an important characteristic of some implicatures –*indeterminacy* –, that doesn't prevent his theory from having the problem detected in the determinacy condition. A speaker would be hardly *aware*[7] of the "specific explanations" forming the implicatum, since there may be many of them. For Davis, it is because the speaker could not have been meaning and believing all the possible interpretations – forming a disjunction as implicatum – that the determinacy condition fails. To make matters worse, it is difficult to see how the indeterminacy that many implicatures possess could be compatible with the determinacy condition. Davis finds it unacceptable: "The most fatal problem with the idea of an indeterminate implicature is that it contradicts the determinacy requirement!" (1998, p. 72).

However, there is a very disputable presupposition that Davis takes for granted. He treats inferences of implicatures as pieces of demonstrative reasoning, but it is not clear that Grice thought this to be the case – as Grice's last quotation says[8].

In sum, these three problems[9] constitute a major flaw in the core of Gricean theory. Davis concludes: "because there are almost always alternative ways for speakers to be cooperative, the determinacy condition is rarely if ever satisfied. So it does not play a role in accounting for the propriety of implicatures" (Davis, 2007, p. 1668). Despite the supporting arguments, I argue that Davis is wrong in drawing this conclusion. Indeed, the determinacy condition fails in Gricean theory as it was first formulated, but we should not go so far as to reject its *role in accounting for the propriety of implicatures*, because it captures a crucial mechanism that connects speakers' utterances and hearers' expectations in generating and working out implicatures. It needs a profound revision, but its essence must be kept. I claim that this is plausible under the relevance theory approach.

3 The strength condition in relevance theory

The Cooperative Principle is not a reliable guide in the generation and working out of implicatures. Dan Sperber and Deirdre Wilson also make this suggestion[10] in their book about *relevance theory* (1995), where they develop an influential theory of communication along the lines of an alternative general principle, the *principle of relevance*:

> **Communicative Principle of Relevance**
> *Every ostensive stimulus conveys a presumption of its own optimal relevance.*
>
> *Use of an ostensive stimulus, then, creates a* PRESUMPTION OF OPTIMAL RELEVANCE. *The notion of optimal relevance is meant to spell out what the audience of an act of ostensive communication is entitled to expect in terms of effort and effect:*
>
> **Presumption of optimal relevance**
> *a. The ostensive stimulus is relevant enough to be worth the audience's processing effort.*
> *b. It is the most relevant one compatible with communicator's abilities and preferences (Wilson and Sperber, 2004, p. 612).*

Communication is essentially a matter of drawing attention to particular facts or assumptions available both to the speaker's and the audience's cognitive environment. Suppose that a ski supervisor notices that there is an avalanche

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[7] See the determinacy condition: "(2) the supposition that he is *aware* that, or thinks that, *q* is required [...]" (Grice, 1989, p. 30-31; my emphasis).

[8] We shall return to this issue in the section on relevance theory.

[9] In his book, Davis also examines other problems regarding other kinds of implicatures, among them the widely discussed *quantity* (or *scalar*) *implicatures*, but here, for reasons of space, we will leave that matter aside, due to their connection with further issues such as the *differentiation* problem (Davis, 1998, Chapter 2) and the extensive literature about them.

[10] The criticism Sperber and Wilson address to Gricean theory is based on an overall discrepancy about the general principles of verbal communication and, to my knowledge, there is no specific mention of the condition (2) of the three-clause schema in 'Logic and Conversation', *i.e.*, the determinacy condition.

coming down and she wants to make that fact manifest to the ski team. *Utterances* are paradigmatic cases of making something manifest, for example: "Avalanche!". This is an ostensive stimulus produced intentionally by the communicator in order to make manifest an available fact to the audience but also a set of assumptions to yield *cognitive effects*[11] ('we should move away from the avalanche as soon as possible', 'avalanches are dangerous', among others). Sperber and Wilson define *relevance* as a comparative notion that combines the cognitive effects an ostensive stimulus produces and the *effort* required to process it. In this regard, the principle of relevance encapsulates the fact that every communicator's ostensive stimulus is presumed to communicate what is communicated with the greatest cognitive effects and the least processing effort; "a presumption of its own optimal relevance".

Narrowing our discussion to *verbal* communication, if a speaker induces or encourages a hearer to process what the speaker makes manifest, the hearer has reasons to think (*to presume*) that the speaker doesn't do it gratuitously or fortuitously and that the information made manifest is worth processing. Interpretations consistent with the principle of relevance are achieved through *explicatures*[12] and implicatures. The notion of *implicature* is roughly characterized by Sperber and Wilson as any assumption implicitly communicated (1995, p. 182)[13]. But there is an important *shift* with respect to Grice: they are not connected with cooperative expectations, but with relevance ones. In addition, Sperber and Wilson distinguish between *implicated premises* and *implicated conclusions*[14] (1995, p. 195), according to the different roles they play in inferring further implicit assumptions.

The strength condition

We can address now the question we left at the end of the section on Grice, that is, how the determinacy condition can be reformulated under the relevance theory approach. Although Sperber and Wilson do not explicitly refer to the determinacy condition of the Gricean three-clause schema nor enunciate a substitute for it, the mechanism this condition attempts to seize underlies their account of implicatures. If we took the principle of relevance as the general guide in the task of making sense of what speakers intend to communicate, we would be able to derive a determinacy condition for relevance theory. However, merely substituting one principle for another will not suffice to overcome the problems we have examined. Moreover, there are fundamental differences between Gricean and relevance theory that need to be made explicit.

To begin with, whereas for Grice implicatures are only supposed to arise when there is a violation of a maxim or the Cooperative Principle at the level of what is said, for Sperber and Wilson there is no *flouting* of the principle of relevance. Speakers do not *observe* the principle of relevance and they could not *violate* it even if they wanted to. The principle of relevance applies without exception: every act of ostensive communication communicates a presumption of relevance (see Sperber and Wilson, 1995, Chapter 3).

The most salient improvement is that relevance theory can account for implicatures that arise from *uncooperative* contributions. Suppose that some friends plan to take a mountain excursion. Jim, who has been there, is asked to provide information from his experience and says: "there are grizzly bears and poisonous snakes". Given that the excursion is in a place where evidently there are no such species, he is implicating that he doesn't want to go. Though he is not being cooperative because he is not providing the information requested (not even at the level of what is implicated), he is indeed conveying an implicature. This case does not fit into Gricean theory.

Conversely, Sperber and Wilson explain Jim's implicature satisfactorily: Jim presumes his utterance to be relevant enough – *i.e.*, that his opinion will matter to his friends – and it is compatible with his preferences, for he is not willing to provide the information about the excursion. This interpretation is consistent with clauses a) and b) of the presumption of relevance.

There is still one significant difference to be indicated. For Sperber and Wilson, the inferences involved in calculating implicatures are not pieces of demonstrative reasoning. To assume that the process of working out implicatures must yield a *determinate* outcome, as the *determinacy* condition demands, leads to a profound misunderstanding of the nature of implicatures.

Nevertheless, among some eminent Gricean theorists (Gazdar, 1979; Horn, 2004; Levinson, 1983), there has been a predilection in treating implicatures as "fully determinate" (Sperber and Wilson, 1995, p. 195).

(7) Peter: Would you drive a Mercedes?
(8) Mary: I wouldn't drive ANY expensive car.

Mary's utterance does not answer directly Peter's question, but it gives Peter a cue for supplying the contextual assumption that 'a Mercedes is an expensive car' and he can derive the implicated conclusion that 'Mary wouldn't drive a Mercedes', that answers his question. The appeal of this exam-

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[11] For the notion of *cognitive effect*, see Sperber and Wilson (1995, p. 150-155, 265-266).

[12] "We will call an explicitly communicated assumption an *explicature*" (Sperber and Wilson, 1995, p. 182).

[13] "An implicature is a contextual assumption or implication which a speaker, intending her utterance to be manifestly relevant, manifestly intended to make manifest to the hearer" (Sperber and Wilson, 1995, p. 194).

[14] As regards the previous footnote, *implicated premises* are contextual assumptions and *implicated conclusions* are contextual implications.

ple lies in that it yields an exact interpretation[15]. But to turn this feature into a common feature of implicatures forces us to leave aside the ones that are not *fully determinate*. I find it worthwhile to recover a passage from Grice:

> While it is no doubt true that the formal devices are especially amenable to systematic treatment by the logician, it remains the case that there are very many inferences and arguments, expressed in natural language and not in terms of these devices, which are nevertheless recognizably valid (Grice, 1989, p. 23-24).

Although Grice is committed to the determinacy condition and we have seen the criticism it receives, he made the firsts steps for an investigation of those inferences that resist formal treatment but that are present in verbal communication. Indeed, Grice proposed the notion of *implicature* to specifically account for these *informal* inferences. There is no reason to duplicate the concept of *logic implication* or *semantic entailment*.

Sperber and Wilson picked up this line of thought and developed it by examining one kind of inference involved in verbal communication: non-demonstrative inference[16] from assumptions to assumptions (1995, Chapter 2). In demonstrative inferences, the truth of the premises guarantees or *determines* the truth of the conclusion, whereas in non-demonstrative inferences the truth of the premises makes probable the truth of the conclusion or makes it likely to be true. If, following Sperber and Wilson, verbal communication does not involve demonstrative inferences but non-demonstrative ones, we can reformulate the determinacy condition into a more adequate one that will treat the process of combining relevance expectations with contextual assumptions to yield a (presumably) relevant conclusion as a non-demonstrative inference.

In analyzing the problem concerning the determinacy condition in Gricean theory, Davis inadvertently reveals that any working-out schema for implicatures cannot be demonstrative precisely because they systematically fail – unless they only deal with fully determinate implicatures. Instead, Sperber and Wilson propose to shift to a non-demonstrative working-out schema.

One could think that this shift weakens the *new* condition we are about to sketch. However, one of the strongest aspects of relevance theory consists in maintaining the process of recovering implicatures as a deductive device: "a non-de-

monstrative inference is not a deduction, but it can contain a deduction as one of its sub-parts" (Sperber and Wilson, 1995, p. 69), which allows to preserve formal correctness from premises to conclusions at the same time that it can be enriched with *synthetic rules* (Sperber and Wilson, 1995, Chapter 2.5-2.7).

These considerations lead Sperber and Wilson to conceive the recovery of implicatures as a matter of degree and, thus, to the distinction between *strong* and *weak* implicatures. The *strength* of an implicature lies in its appropriateness to the principle of relevance: the stronger the implicature, the more required is its recovery to satisfy the speaker's presumption of relevance and the hearer's expectations[17]. It's time to abandon the determinacy condition and reformulate it:

Strength condition: The supposition that the speaker implicates a set of assumptions, some of them strongly implicated and some weakly implicated, is required in order to make her utterance consistent with the principle of relevance. In the absence of strongly implicated assumptions, an array of weakly implicated assumptions is required.

The mechanism that the strength condition describes is triggered when explicatures are not enough to fulfill the audience's relevance expectations. This is the starting point of implicature derivation. Given that the explicit assumptions communicated by the speaker are not relevant enough – typically because those assumptions have no direct bearing on the topic of the conversation –, the audience presumes that the speaker is implicitly communicating something else. An additional refinement with respect to the determinacy condition is that the strength condition does not exclusively require a single candidate to fulfill the condition.

The aim of the strength condition is to exhibit the underlying connection between the speaker's utterance and the presumption of relevance: when there is a mismatching between them because, apparently, the speaker does not satisfy the audience's expectations, the audience automatically searches implicatures that reconcile the speaker with the principle of relevance. Moreover, the strength condition explains the feedback between the speaker's act of communicating an implicature and the hearer's expectations and abilities and how they both recognize the same patterns for conveying and retrieving implicatures. The speaker does not implicate something by merely *intending* it; she must do it *properly*, so the audience can recover the implicature. Thus, the strength condition captures the normative dimension of the notion of implicature.

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[15] But, of course, this is not fortuitous, because this example is a model of the deductive syllogism's argumentative schema: the universal premise («Any *S* is *P*») corresponds to 'Mary wouldn't drive any expensive car'; the particular premise («*x* is *S*») to 'a Mercedes is an expensive car'; and the conclusion («*x* is not *P*») to 'Mary wouldn't drive a Mercedes'.

[16] "We are suggesting, then, that non-demonstrative inference, as spontaneously performed by humans, might be less a logical process than a form of suitably constrained guesswork. If so, it should be seen as successful or unsuccessful, efficient or inefficient, rather than as logically valid or invalid" (Sperber and Wilson, 1995, p. 69).

[17] Sperber and Wilson's characterization of strong and weak implicatures is slightly different (see Wilson and Sperber, 2004, p. 620-621; Sperber and Wilson, 1995, Chapter 4.6).

It could be objected that the strength condition does not add anything that is not already in the principle of relevance. It's true that the principle of relevance accounts for every form of ostensive communication, including, of course, implicatures. Nevertheless, its role is to condense in a single general principle the prime mechanism of ostensive communication. In this regard, it is illuminating to render explicit the *sub-mechanisms* that explain the particular forms of ostensive communication, as is the case of the strength condition.

Now that we have a strength condition for the relevance theory, let's see whether it faces the same problems that Davis identified in Gricean theory or is strong enough to avoid them.

Strong implicatures[18]. Explicit versus implicit communication towards relevance appropriateness

The Barber of Seville is performed at the city theater. A journalist and a music critic attend the opera. Once it has ended, they come across each other at the exit. They know each other, and the following exchange takes place:

(9) Journalist: So, what do you think?
(10) Music critic: Rossini is a guarantee of success.

The music critic presumes her utterance to be relevant enough, but, given that she is not saying anything – *i.e.*, not communicating anything explicitly – about the performance of *The Barber of Seville*, she must be communicating something else – if she is to be presumed to be consistent with the principle of relevance. The journalist, encouraged by these expectations, searches for contextual assumptions that bear the closest relation possible with the question he has asked and the music critic's utterance. In this respect, the most salient one is: (a) 'Rossini composed *The Barber of Seville*.' This contextual assumption works as an implicated premise that permits to derive the implicated conclusion: (b) 'The performance of *The Barber of Seville* was a success.' Up to this point, the strength condition works adequately in constraining the inferential process of retrieving these strong implicatures.

But there was a more severe problem concerning explicit and implicit assumptions which resulted in a serious objection to Grice's theory. To communicate an assumption implicitly doesn't seem to be the most relevant way to convey it. There are risks associated to this kind of inferences (ambiguity, obscurity, lack of shared information and so on) that ex-

plicit utterances do not entail. If a speaker intends to communicate an assumption and does it by means of an implicature, she has chosen an unnecessary cumbersome way to provide the information to the audience. This problem arises from the inclusion of the *effort* component in relevance theory. To be relevant is a matter of obtaining cognitive effects for a reasonable amount of effort and, in this regard, implicatures require an additional processing effort in comparison with an explicit utterance. Therefore, conveying an implicature would hardly be consistent with the principle of relevance.

Sperber and Wilson have a solution for this striking problem. Every act of communication communicates a presumption of relevance, so the speaker must be communicating something else apart from her utterance *and* the strong implicatures already recovered: she is drawing attention to further implicatures. From the music critic's utterance (10) and the strong implicatures (a) and (b), the journalist can supply additional implicatures such as the implicated premise (c) 'Rossini (also) composed *The Italian Girl in Algiers*,' that allows to infer the implicated conclusion (d) 'The performance of *The Italian Girl in Algiers* would be a success'[19]; or that (e) 'Operas composed by celebrated figures such as Rossini are a guarantee of success'; or (f) 'Rossini has a great acceptance among the public,' among an indefinite number. They are weakly implicated because none of them is specifically required to restore the apparent mismatching between the music critic's utterance and the principle of relevance, but without any of them the music critic would fail to be relevant[20]. The music critic uttered (10) precisely because she presumed it would be more relevant than the explicit communication of (b) 'The performance of *The Barber of Seville* was a success.' In fact, an explicit utterance of this form would have lacked those additional cognitive effects. After all, strong implicatures are relevant – in the ordinary sense – but not *relevant* enough – in Sperber and Wilson's sense.

Literal versus figurative speech towards relevance appropriateness. The case of irony

In the previous analysis of this problem in the section on Gricean theory, the determinacy condition did not manage to capture whether the speaker's utterance is literal or figurative, provided that both literal and figurative contributions could be consistent with the presumption of cooperativeness. Can the strength condition overcome this inconvenient?

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[18] Given that Sperber and Wilson already have this term to refer to the kind of implicatures that *relevance implicatures* refer to and that it would be redundant, I have chosen to replace the terms regarding the section on Grice. I have also changed the example for the sake of clarity in explaining the details of this approach.

[19] And we could do the same with other operas composed by Rossini.

[20] Whereas strong implicatures are markedly dependent on the speaker, the working-out process of weak implicatures is more up to the hearer, but, of course, they must have some bearing on the speaker's utterance. Within the group of weak implicatures, those that are closest to the strong implicatures are the ones that the speaker might have more likely uttered. The weaker the implicature, the more responsible is the hearer for deriving it (see Sperber and Wilson, 1995, Chapter 4.4).

In our example, Sam is presumably making an ironic utterance. Regarding verbal irony, Sperber and Wilson developed a specific account on this topic under the relevance theory approach: ironic utterances *echo* propositional contents about which speakers express a *dissociative attitude* that ranges from savage scorn to mild ridicule. The interpretation of Sam's utterance goes as follows: Sam does not assert (5) "It is a fine day!", but echoes its propositional content and, in doing so, expresses a dissociative attitude to it. From the perspective of the audience, the contextual assumptions (a) 'most people don't like being caught in a blizzard' and (b) 'it is not a weather state to be considered "a fine day"' are supplied in the process of working out that the speaker is being ironic. With the support of these implicated premises, the audience derives the implicated conclusion: (c) 'it is an awful day'.

However, if all Sam wanted to convey was (c), he could have spared the audience the effort that is required to carry out the inference to interpret his ironic utterance by asserting (c) in the form of literal speech. If additional effort is required, the speaker must presume it is worthwhile processing it if his utterance is to be consistent with the principle of relevance. An ironic utterance presumes to achieve more cognitive effects, *i.e.*, presumes to be more relevant than the explicit utterance of the proposition it echoes. Most ironic utterances have a strong implicature (*e.g.* [c] 'it is an awful day') that, though playing an important role, it is insufficient to bring together again the speaker with the presumption of relevance. A strong implicature does not constitute the main point of an ironic utterance and is at most an implicated premise of it (Sperber and Wilson, 1995, p. 241). Strong implicatures are the *launch pad* for the audience to supply additional assumptions with a direct bearing on the preceding ones. This new set of assumptions considered act as premises from which an array of weak implicatures is derived, which fulfills the audience's relevance expectations.

Suppose Sam hoped this to be a great hunting day and wanted to show off in front of his friends. But, unfortunately, the blizzard ruins it. He feels the urge to express his frustration and cries: (5) "It is a fine day!". He is not merely intending to implicate that (c), but also to ridicule himself after he realized how fool he had been for having such high expectations. If Sam had opted to make the literal and explicit utterance "It is an awful day!", his utterance would have lacked these cognitive effects. Thanks to these additional assumptions, the audience recognizes in Sam a dissociative attitude towards his utterance, which takes the form of weak implicatures such as (d) 'Sam is ridiculing himself for having such high expectations,' (e) 'Sam regrets not having anticipated that there could be a blizzard,' (f) 'Hunting is important for Sam,' among others.

But how does the strength condition overcome the problem of when literal or when figurative speech is required? When Sam utters (5), the audience spontaneously connects his utterance with (a) and (b), according to the mechanism described by the strength condition. These assumptions have such a close bearing on Sam's utterance that they stand out above others and constrain its interpretation. Sam could not

be speaking literally if he is to be presumed to be consistent with the principle of relevance. A literal interpretation of his utterance would ignore (a) and (b), which means that the audience would ignore the most salient assumptions related with Sam's utterance. Suppose the audience knows that Sam is really enjoying the blizzard because he has this extravagant taste. But then the assumption that 'Sam likes blizzards' would be the most salient assumption and an interpretation consistent with the strength condition would have to include it.

Indeterminate implicatures. The case of metaphor

In the example examined in the homonymous section on Grice, Peter is having some money issues and his friend Mary tells him:

(6) You are now in troubled waters, but they will calm down, you'll see.

There were various possible interpretations consistent with the Cooperative Principle: (a) that Peter is going through some economic difficulties now, but they will eventually go away; (b) that though Peter is depressed now, he is going to feel better in the future; and (c) that Peter's problems will require painstaking efforts to be overcome (and the list is open). The trouble is that though the determinacy condition demands that only *one* of these possible candidates for implicatum is required, they are equally valid – because they make consistent the presumption that the speaker is observing the Cooperative Principle.

Does the strength condition fail as well? The strength condition does not exclusively require a *single* interpretation: in fact, in the light of our new condition (a), (b) and (c) are all implicatures of Mary's utterance. Relevance is not only achieved by strong implicatures; if a range of weak implicit assumptions make it worthwhile to undertake the effort of processing the speaker's utterance, then the audience has built up an interpretation consistent with the principle of relevance. In our example, Peter (the audience), guided by the expectation that Mary intends to make a relevant contribution on his money problems, accesses the more salient contextual assumptions that have a bearing on 'troubled waters': that 'troubled waters are dangerous,' that 'they are not a desirable situation for navigation,' that 'they prevent normal activity,' among others. With the help of these implicated premises, the audience can derive implicated conclusions such as (a), (b) and (c).

In these cases, there is no implicature that is strong enough standing out above the rest. Rather, some implicated conclusions are recovered, which may vary in their strength: the ones described but also additional ones, such as (d) 'handling money is like navigation: there are moments of calm but also of struggle'; or (e) 'the same emotions arise in a sea storm and in money problems.'

There is still one unanswered question: whereas the inferential path for deriving strong implicatures is clear, this seems not to be the case for weak implicatures. What's more, since a common feature of them is *indeterminacy*, weak implicatures put at risk the calculability of implicatures. If the inferential path is not constrained enough, how can the audience derive the implicatures conveyed? The solution for this problem is already provided in the formulation of the strength condition. The inference of an implicature is a non-demonstrative piece of reasoning. There is no determined conclusion but a probable one, depending on the strength of the assumptions supplied as premises: the stronger the implicated premises, the stronger are the implicated conclusions[21].

4. Conclusion

We have seen that after examining Grice's determinacy condition and Davis' arguments, determinacy is a severely flawed requirement. However, it still captures a key mechanism of implicatures that, as I have shown, can be preserved through a reformulation within relevance theory. Whereas the determinacy condition fails, the strength condition accounts for three significant problems concerning explicit and implicit verbal communication, literal and figurative speech and the indeterminacy present in some implicatures. In fact, the analysis shows that these are questions that any well-founded theory of implicature must account for.

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[21] See footnote 19.