Relevance Theory

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RELEVANCE THEORY

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Abstract

This paper outlines the main assumptions of relevance theory (while attempting to clear up some common objections and misconceptions) and points out some new directions for research. After discussing the nature of relevance and its role in communication and cognition, it assesses two alternative ways of drawing the explicit–implicit distinction, compares relevance theory's approach to lexical pragmatics with those of Grice and neo-Griceans, and discusses the rationale for relevance theory's conceptual–procedural distinction, reassessing the notion of procedural meaning in the light of recent research. It ends by looking briefly at the relation between the capacity to understand a communicator's meaning, on the one hand, and the capacity to assess her reliability and the reliability of the communicated content, on the other, and considers how these two capacities might interact.

Keywords: Relevance, communication, explicatures, lexical pragmatics, procedural meaning

1. Introduction

One of the most original features of Grice's approach to communication was his view that meaning is primarily a psychological phenomenon and only secondarily a linguistic one: for him, speaker's meanings are basic and sentence meanings are ultimately analysable in terms of what speakers mean (Grice 1957, 1967). Despite this reference to psychology, Grice's goals were mainly philosophical or semantic: his analysis of speaker's meaning was intended to shed light on traditional semantic notions such as sentence meaning and word meaning, and his accounts of the derivation of implicatures were rational reconstructions of how a speaker's meaning *might* be inferred, rather than empirical hypotheses about what actually goes on in hearers' minds. Relevance theorists have been trying to develop Grice's insights in a different direction, by incorporating them into a psychologically plausible, empirically testable theory of overt ('ostensive') communication.

Relevance theory, like other broadly Gricean approaches to pragmatics, takes as its starting point three of Grice's assumptions about verbal communication. The first is that a sentence meaning is a vehicle for conveying a speaker's meaning, where a speaker's meaning is an overtly expressed intention that is fulfilled by being recognised. The second is that a speaker's meaning cannot be simply perceived or decoded, but has to be inferred from her behaviour, together with contextual information. The third is that in inferring a speaker's meaning, the hearer is guided by the expectation that communicative behaviour should meet certain standards: for Grice, a cooperative principle and conversational maxims, and for

relevance theorists, a presumption of optimal relevance. However, relevance theory also differs from Grice's framework in several important respects.

One important difference has to do with the scope of pragmatics. Grice's theoretical definition of speaker's meaning[1] ('meaning$_{NN}$') was designed to apply to certain cases of non-verbal communication but exclude others. For instance, when Mary shows Peter her bandaged leg in response to his invitation to play squash, Grice (1967/1989: 109) notes that although she overtly intended to make Peter believe both that her leg was bandaged and that she couldn't play squash, it seems appropriate to describe her as *meaning* that she couldn't play squash, but not as *meaning* that her leg was bandaged. He therefore added a third clause to his definition of speaker's meaning, designed to exclude this second type of case. While Sperber and Wilson (1986/1995: 53-4) share Grice's intuition that use of the ordinary-language term 'meaning' is inappropriate in certain cases, they argue that the resulting definition of speaker's meaning does not pick out a natural class of phenomena, since the cases Grice wants to exclude fall under exactly the same generalisations as those he wants to include. They therefore propose a broader definition of *ostensive communication* which covers both 'showing' and 'telling', and which subsumes prototypical Gricean speaker's meanings as a special case. This difference matters not only for non-verbal communication but for many verbal cases where 'telling' and 'showing' combine, or where the intended effect is not easily rendered as a single proposition that the speaker can be said to have *meant* (as with stylistic or poetic effects). These fall squarely within the scope of a theory of ostensive communication, while in Grice's framework they receive only partial treatment at best.[2]

A second difference has to do with the role of pragmatic principles or maxims in utterance comprehension. Grice was mainly concerned with pragmatic factors affecting the identification of implicatures, whereas relevance theorists (and a growing number of other broadly Gricean approaches) are equally concerned with pragmatic factors affecting the identification of explicit truth-conditional content.[3] In Grice's framework, moreover, communicators can blatantly violate a maxim in order to trigger the search for an implicature, whereas blatant violation of pragmatic principles or maxims has no comparable role in relevance theory. In particular, relevance theorists question the need for Grice's first Quality maxim ('Do not say what you believe to be false') – which seems to have no other function in Grice's framework than to be violated in figurative utterances – on two main grounds. First, there are alternative accounts of figurative utterances which involve no blatant maxim violation and fit better with current processing models.[4] Second, for Grice's account to work, the speaker must blatantly violate the first Quality maxim by *saying* something literally false;

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[1] Grice's term was 'utterer's meaning', where an 'utterance' is an overtly intentional attempt – whether verbal or non-verbal – to produce a certain cognitive or behavioural response in an audience.
[2] See Sperber and Wilson (1986/1995: 50–60); Wharton (2009); Sperber and Wilson (forthcoming).
[3] See e.g. Wilson and Sperber (1981, 1993); Sperber and Wilson (1986/1995: 182–3); Carston (1988, 2002, this volume); Bach (1994); Levinson (2000); Recanati (2004, 2010).
[4] See e.g. Wilson and Carston (2006, 2007, 2008); Sperber and Wilson (2008); Wilson and Sperber (2012a).

yet for Grice, *saying* involves speaker commitment, and in figurative utterances, the speaker precisely does not commit herself to the truth of the proposition literally expressed. Indeed, Grice generally describes the speaker of a figurative utterance as merely 'making as if to say' something, and in that case, it is hard to see how his first Quality maxim is violated at all.[5]

A third difference has to do with how far communication is cooperative in Grice's sense. According to Grice (1967/1989: 26), participants in a talk exchange are expected (*ceteris paribus*) to observe his 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'), and pragmatic inferences – including conversational implicatures – are derivable only on the assumption that the cooperative principle is being observed. According to Sperber and Wilson (1986/1995: 161–2), by contrast, the only purpose a genuine communicator and a willing audience have to share is that of achieving uptake, i.e., getting the audience to recognise the communicator's overtly expressed intention to inform them of something. While some communicative exchanges are cooperative in Grice's sense, the presence of an accepted purpose or direction is seen in relevance theory as just one of many contextual factors that can play a role in comprehension. It may be outweighed by other factors (as when a speaker breaks off to comment on some unexpected event), or it may be entirely absent (as in casual conversation, hostile cross-examination or subtler forms of conversational tug-of-war).[6] This difference has implications for comprehension. In Grice's framework, a speaker can conversationally implicate that she is *unable* to provide some required information (since in order to provide it, she would have to violate the Quality maxims) but not that she is *unwilling* to provide it, since in this case she would be violating the cooperative principle itself. For relevance theorists, inferences about the speaker's abilities and preferences play an equal and parallel role in comprehension, so a speaker who fails to provide some required information may be just as well understood (in appropriate circumstances) as implicating that she is either unwilling or unable to provide it.[7]

Relevance theory, then, treats utterance comprehension as an inferential process which takes as input the production of an utterance by a speaker, together with contextual information, and yields as output an interpretation of the speaker's meaning. Utterance comprehension is seen as essentially an exercise in mindreading, and the challenge for relevance theorists attempting to build a psychologically plausible, empirically testable pragmatic theory is

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[5] Notice that what relevance theorists deny is the claim expressed in Grice's first Quality maxim, that speakers are expected to *say* something literally true. It follows from the presumption of relevance that speakers are expected to *communicate* something true, since an utterance cannot be relevant without achieving some true cognitive effects (Wilson and Sperber 2002).

[6] Grice (1989: 369–70) describes these as 'degenerate, derivative' cases which 'honor the cooperative principle at least to the extent of aping its application', and adds that 'collaboration in achieving exchange of information … may co-exist with a high degree of reserve, hostility, and chicanery and with a high degree of diversity in the motivations underlying quite meagre common objectives'. Given these substantial qualifications, it is not obvious what his insistence on the need for his cooperative principle brings to his account.

[7] This difference has implications for the treatment of scalar inferences; see e.g. Sperber and Wilson (1986/1995: 272–78); Carston (1998); Noveck and Sperber (2007).

precisely to explain how the closed formal system of language provides effective pieces of evidence which, combined with contextual information, enable successful comprehension to take place. The current version of the theory is a result of many years of collective endeavour by linguists, philosophers and cognitive scientists.[8] Here I will briefly outline some of its main assumptions (while attempting to clear up some common misconceptions), and point out some recent developments and new directions for research.

2. Relevance and Cognition

Relevance theory is grounded in a definition of relevance and two principles of relevance: a cognitive and a communicative principle. The definition of relevance was not intended to capture any of the ordinary-language senses of the word 'relevance', but to provide a useful theoretical concept which picks out an important psychological property and has enough in common with these ordinary-language senses to justify the name (Sperber and Wilson 1986/1995: 119). Some commentators see the resulting theoretical concept as *not* having enough in common with the everyday sense of the word.[9] While this is a largely terminological matter, it does raise a substantive issue about the nature of relevance, and is worth a brief response.

Most linguists attempting a theoretical definition of relevance start from notions such as 'relevance to a purpose', 'relevance to a question', or 'relevance to a topic', where the purpose, question or topic is fixed (or sharply delimited) in advance of the comprehension process rather than identified in the course of comprehension. Sperber and Wilson (1986/1995: ch. 3) start by defining two more general notions: 'relevance in a context' and 'relevance to an individual'. A context comprises mentally represented information of any type – beliefs, doubts, hopes, wishes, plans, goals, intentions, questions, etc. – and is constructed or selected in the course of the comprehension process from a range of potential contexts available to the individual. One reason for treating these more general notions as basic is that considerations of relevance play a fundamental role not only in communication but in cognition. The aim is to define relevance not only for utterances or other communicative acts, but for any external stimulus or internal mental representation which can provide an input to cognitive processes, so that not only utterances but sights, sounds, smells, thoughts, memories or conclusions of inferences may all provide potentially relevant inputs (for an individual, at a time). While it is not implausible that many utterances contribute to an accepted purpose, question or topic which is fixed in advance of the comprehension process, it is quite implausible that the same is generally true of cognition.

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[8] Recent book-length discussions include Blakemore (2002); Carston (2002); Wharton (2009); Wilson and Sperber (2012b); Clark (2013); Ifantidou (2014); Jodłowiec (2015); Zufferey (2015). Recent encyclopaedia entries include Wilson and Sperber (2004); Sperber and Wilson (2005); Carston and Powell (2006); Carston (2012, this volume). I will try to complement, rather than repeat, those earlier discussions where possible.

[9] Levinson (2000: 55) describes Sperber and Wilson's notion of relevance as 'a very inadequate characterization of what pretheoretically would generally be considered the nature of relevance', and Bach (2010: 135) refers to 'relevance theorists' highly idiosyncratic and misleading use of the term'.

Suppose you are watching a tennis match on television. You happen to notice that one of the players repeatedly bounces the ball eight times before serving, while the other bounces it once or twice and serves straight away. Is this information relevant to you? Intuitively, it will be relevant if it interacts with some contextual information you have available to achieve a worthwhile cognitive effect: for instance, by enabling you to draw conclusions about the characters of the players, confirming your suspicion that one of them is more nervous than the other, answering a question about which of them is more likely to win, helping you decide whether to go on watching the match, and so on. According to relevance theory, other things being equal, the greater the cognitive effect achieved, and the smaller the mental effort required, the more relevant this input will be to you at the time (Sperber and Wilson 1986/1995: 260–6). In this framework, relevance to a purpose, question or topic is a special case of relevance in a context or relevance to an individual. Typically, an input achieves relevance in a context consisting of information of many different types, none of which seems to play a privileged role in the derivation of cognitive effects.

Why did you notice the players' ball-bouncing techniques, and why did you interpret them in the way you did? At any point in your waking life, a huge variety of potential inputs are competing for your attention, and a fundamental problem for human cognition is how to allocate attention and processing resources among them. According to relevance theory, as a result of constant selection pressures towards increasing cognitive efficiency, the human cognitive system has developed a variety of mental mechanisms or biases (some innate, others acquired) which tend to allocate attention to inputs with the greatest expected relevance, and process them in the most relevance-enhancing way. This claim is expressed in the cognitive principle of relevance ('Human cognition tends to be geared to the maximisation of relevance') (Sperber and Wilson 1986/1995: 260–6). On this approach, you happened to notice the players' ball-bouncing techniques because, given the organisation of your cognitive system, of all the potential inputs competing for your attention, this one had the greatest expected relevance for you at the time; and you interpreted this input in the context of your knowledge of tennis and tennis players, plans for the afternoon and so on, because given the organisation of your cognitive system, of all the potential contexts available to you, this was expected to enhance its relevance most.[10] More generally, what makes an input relevant to an individual is that it interacts with contextual information he has available to yield worthwhile cognitive effects (e.g. warranted conclusions, warranted strengthenings or revisions of available information), and what makes it *maximally* relevant to the individual is that it yields greater effects, for less effort, than any alternative input available to him at the time.

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[10] Of course, there is no way of guaranteeing that the cognitive system will make the right choices on every occasion, and what it expects to be relevant on a given occasion may turn out not to be. Hence the reference in the cognitive principle to a *tendency* to maximise relevance.

A common objection to the cognitive principle is that it is too vague and general to be falsifiable.[11] However, it would be straightforwardly falsified by evidence that human attention and processing resources are systematically allocated on some other basis: for instance, to inputs which are expected to be informative without being relevant, to yield many associations but few inferential effects, to be cheap to process regardless of any expected effects, or to have many effects regardless of the processing costs incurred. The cognitive principle also makes a number of testable predictions about human perceptual, memory retrieval and inferential mechanisms. Here, I will consider just one.

It follows from the cognitive principle that human inferential mechanisms tend spontaneously to derive potentially relevant conclusions (i.e. conclusions expected to lead on to further cognitive effects), ignoring others which are logically valid but have few expected effects. This prediction was experimentally tested by Van der Henst, Sperber and Politzer (2002). Participants were given pairs of premises such as (1a)–(1b) (a 'determinate relational problem') or (2a)–(2b) (an 'indeterminate relational problem') and simply asked 'What follows?'

Determinate relational problem
(1) a. A is taller than B
     b. B is taller than C

Indeterminate relational problem
(2) a. A is taller than B
     b. C is taller than B

In principle, any set of premises yields an infinite number of logically valid conclusions, and if the goal of human inferential mechanisms were merely to derive valid conclusions, participants should be able to go on listing conclusions indefinitely. In practice, participants typically provide a single conclusion or none at all, because they interpret the question as 'What *of relevance* follows?' Thus, when presented with indeterminate relational problems such as (2), 43 per cent of participants said 'Nothing follows' (whereas only 8 per cent said 'Nothing follows' when presented with determinate relational problems such as (1), which yield a highly salient and potentially relevant conclusion). These results confirm the prediction that human inferential mechanisms do not simply derive logically valid conclusions regardless of their potential relevance.

Moreover, participants who did draw conclusions from the indeterminate relational problems tended to produce 'single-subject' conclusions (e.g. 'B is shorter than A and C') rather than 'double-subject conclusions' (e.g. 'A and C are taller than B'), even when, as in (2a) and (2b), this involved the extra effort of substituting one lexical item for another and altering the syntax of the premises. Van der Henst et al. argue that the extra effort is justified by the fact that single-subject conclusions have greater expected relevance than double-subject

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[11] For recent discussion, see the papers in Burton-Roberts (2007) and Soria and Romero (2010).

conclusions, since they are more likely to combine with available contextual information to lead on to further conclusions. This surprising result is predictable on the assumption that human inferential mechanisms are relevance-oriented, and hard to explain in other terms.

3. Relevance and Communication

The claim that human cognition is relevance-oriented has immediate implications for pragmatics. For communication to succeed, the speaker needs the addressee's attention. Since attention tends to go automatically to what is most relevant at the time, a prerequisite to successful communication is that the addressee must take the utterance to be relevant enough to be worth attending to. Then a speaker, by the very act of addressing someone, communicates that the utterance meets this precondition, and this is what the communicative principle of relevance states (Sperber and Wilson 1986/1995: 266–78):

> *Communicative principle of relevance*
> Every utterance communicates a presumption of its own optimal relevance

Notice that the presumption mentioned in the communicative principle is one of optimal, not maximal, relevance. Although addressees might *want* speakers to aim at maximal relevance, and helpful speakers may indeed try to give them what they want, what addressees are entitled to expect within this framework is something rather less.

An utterance is optimally relevant under two conditions:

> *Optimal relevance*
> a.   It is at least relevant enough to be worth the addressee's processing effort.
> b.   It is the most relevant one compatible with the speaker's abilities and preferences.

According to clause (a), the addressee is entitled to presume that the utterance is at least relevant enough to be worth his processing effort; otherwise, he will not attend to it at all.[12] According to clause (b), he is also entitled to presume that the speaker will have gone beyond this minimal level of relevance – to the extent that she is both willing and able to – by reducing the processing effort required and increasing the cognitive effects achieved, thus increasing her chances of holding his attention and getting her point across (Wilson and Sperber 2002).

Given this background, there is a practical heuristic that addressees can use in identifying the speaker's meaning (i.e. the array of cognitive effects that she overtly intended to achieve):

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[12] How relevant the utterance has to be to meet this condition depends on what else is going on in the addressee's cognitive environment at the time: the more relevant the other inputs competing for his attention, the more relevant the utterance has to be to be worth his processing effort.

> *Relevance-guided comprehension heuristic* (Wilson and Sperber 2002)
>
> a. Follow a path of least effort in constructing an interpretation of the utterance (and in particular in resolving ambiguities and referential indeterminacies, adjusting lexical meaning, supplying contextual assumptions, deriving implicatures, etc.).
>
> b. Stop when your expectations of relevance are satisfied.

The goal is to find an overall interpretation that confirms the presumption of optimal relevance. For this, the addressee must enrich the decoded sentence meaning at the explicit level, and complement it at the implicit level, so as to yield enough cognitive effects to satisfy his expectations of relevance. The relevance-guided comprehension heuristic is an automatic procedure for achieving this goal; it is seen in relevance theory as belonging to a specialised comprehension module, a component of a broader mindreading module dedicated to attributing mental states in order to explain and predict behaviour.[13]

What makes it reasonable for the addressee to follow a path of least effort is that the speaker is expected (within the limits of her abilities and preferences) to have made the utterance as easy as possible for him to understand. Since relevance varies inversely with effort, the very fact that an interpretive hypothesis is easily accessible gives it an initial degree of plausibility (an epistemic advantage specific to communicated information). What makes it reasonable for the addressee to stop at the first interpretation which satisfies his expectations of relevance is that a speaker who knowingly produced an utterance with two or more significantly different interpretations, each yielding the expected level of cognitive effect, would put him to the gratuitous extra effort of choosing among them, and the resulting interpretation (if any) would not satisfy clause (b) of the presumption of optimal relevance. Thus, when a hearer following the path of least effort finds an interpretation that is relevant in the expected way, in the absence of contrary evidence, this is the best possible interpretive hypothesis. Since comprehension is a non-demonstrative inference process, this hypothesis may well be false. This can happen when the speaker formulates the utterance in a way that is inconsistent with the expectations raised, so that the normal inferential routines of comprehension fail. Failures in communication are common enough. What is remarkable and calls for explanation is that communication works at all.

A common objection to the communicative principle is that it is too vague and general to be falsifiable. However, this is often based on a misconception. It has been suggested, for instance, that a hearer looking for the most relevant interpretation of an utterance can never be sure of having found it, since by spending a little more effort, it may be possible to achieve substantially greater effects, and hence more relevance (Bach 2010: 136; Davis 2014: section 11). But, as noted above, the hearer's goal is not to find the *most relevant interpretation*: it is to construct an overall interpretation on which the utterance satisfies the presumption of

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[13] For discussion see Sperber and Wilson (2002, 2005); Wilson and Sperber (2002, 2004).

optimal relevance.[14] Moreover, as shown above, the relevance-guided heuristic has a clear stopping point.[15]

The communicative principle would be straightforwardly falsified by evidence that communicators systematically orient to some other property of utterances than optimal relevance. This could happen, for instance, if speakers systematically aim at literal truthfulness rather than optimal relevance, or produce utterances which are informative without being relevant, or prefer to save their own effort even if the result is not relevant enough to be worth processing. Here, relevance theory comes into direct conflict with Grice's framework. For Grice, the first Quality maxim was the most important of all the maxims (Grice 1989: 27, 371), and from this it should follow that considerations of literal truthfulness systematically outweigh those of informativeness, relevance or perspicuity. The theoretical consequences of this difference between the two frameworks were discussed in Wilson and Sperber (2002) and experimentally tested by Van der Henst, Carles, and Sperber (2002).

In an initial experiment, Van der Henst et al. simply approached strangers in the street and asked 'Do you have the time, please?', giving no indication of why the question was being asked. The prediction was that, if the speaker's watch showed (say) 3.13, in the absence of any indication that some crucial implications would be lost, an answer rounded to the nearest five minutes would be easier for the hearer to process, and hence more likely to be produced by a speaker aiming at optimal relevance. And indeed, 97% of participants with analogue watches gave a rounded answer, while 57% of those with digital watches went to the extra effort of producing a rounded answer rather than simply reading off a strictly accurate (and literally truthful) answer, thus confirming the prediction that speakers systematically aim at optimal relevance rather than literal truthfulness.

In a second experiment, the experimenters asked 'Do you have the time, please? My watch has stopped', thus explicitly indicating that a strictly accurate answer would be more relevant than a rounded one. Here, the percentage of rounders fell from 97% to 49% (only results for participants with analogue watches were reported in this experiment), suggesting that speakers tend to provide strictly accurate (i.e. literally truthful) answers when they expect them to be relevant. In a third experiment, the experimenters asked 'Do you have the time, please? I have an appointment at 4.00', at different intervals in the half hour leading up to the

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[14] Or, in more complex cases, on which the speaker might have thought it would satisfy, or at least seem to satisfy, the presumption of optimal relevance (Sperber 1994; Wilson 2000).

[15] In a confused and confusing exposition of relevance theory, Wayne Davis (2014: section 11) attributes to Sperber and Wilson the view that communication is governed by a 'Principle of Maximal Relevance', suggests that they hesitate between notions of maximal and optimal relevance (rather than simply applying them in different domains), claims that 'neither maximal nor optimal relevance requires the speaker to minimise processing cost', since 'Additional effort can always be justified by an increase in informativeness', maintains that 'optimal relevance does not pick out a unique contribution to the conversation', and suggests that relevance theory excludes the possibility of scalar implicatures and reminders. All these points are explicitly discussed in Sperber and Wilson (1986/1995) and many later works.

imaginary appointment. The results showed that speakers tended to give more strictly accurate answers as the time of the imaginary appointment approached (when some crucial implications might be lost by rounding). These results are straightforwardly predictable on the assumptions of relevance theory, and hard to explain in frameworks where a maxim of literal truthfulness is seen as the most important of all the maxims (for further tests of the cognitive and communicative principles, see Van der Henst and Sperber 2004).

4. The Explicit–Implicit Distinction

The term 'explicature' was introduced in early work in relevance theory to avoid a potential problem with Grice's notion of 'what is said' (Wilson and Sperber 1981; Sperber and Wilson 1986/1995: 182). For Grice, 'what is said' does double duty: it refers to (a) the result of combining sentence meaning with disambiguation and reference resolution (often described as *the proposition literally expressed* and treated as the output of semantics), and (b) part of speaker's meaning (e.g. what is asserted rather than implicated). The problem is that (a) and (b) do not necessarily coincide.

Consider Mary's utterance in (3b):

(3)   a. *Peter:* Let's ask Billy to see a film with us tonight.
        b. *Mary:* He has to finish a paper.

Suppose that the result of combining the meaning of the sentence uttered with disambiguation and reference resolution is the proposition in (4) (where PAPER$_1$ denotes academic papers, parliamentary papers, conference papers etc., but not newspaper enterprises):

(4)   Billy$_i$ has to finish doing something with a PAPER$_1$ at some point in the future.

This is what Mary has 'said' in sense (a) above. However, if Peter understood Mary as asserting (4), her utterance would not satisfy his expectations of relevance, since it does not imply a clear response to his proposal in (3a). He is therefore likely to interpret her as asserting something richer and more pragmatically satisfactory, such as (5):

(5)   Billy$_i$ has to finish writing a PAPER$_1$ soon.

By combining (5) with the contextual information in (6a), he could derive the implicature in (6b), thus arriving at an overall interpretation that satisfies his expectations of relevance:

(6)   a. A good reason for not asking someone out is that they have to finish writing a
           PAPER$_1$ soon
        b. They shouldn't ask Billy$_i$ out because he$_i$ has to finish writing a PAPER$_1$ soon.

Here, the two notions of 'what is said' come apart.

Moreover, it seems clear that disambiguation and reference resolution are also geared to finding a pragmatically satisfactory overall interpretation, and therefore fall within the scope

of pragmatics rather than semantics. In (3b), for instance, a hearer using the relevance-guided comprehension heuristic will interpret 'he' as referring to Billy$_i$, and disambiguate 'paper' as PAPER$_1$, because these are the most salient hypotheses which lead on to an overall interpretation that satisfies his expectations of relevance. What is left of the linguistic meaning of (3b) once disambiguation and reference resolution are removed is quite fragmentary and incomplete, and falls far short of determining a unique proposition literally expressed; Sperber and Wilson (1986/1995: 72–5) call this fragmentary sentence meaning a logical form. As noted above, the hearer's goal in developing the logical form of (3b) into a fully propositional form is to find an overall interpretation that satisfies his expectations of relevance. For this, he uses the relevance-guided comprehension heuristic, following a path of least effort in using contextual information to disambiguate the ambiguous word 'paper', assign reference to the pronoun 'he', and enrich his interpretation of what Billy is doing to the paper and when he will do it, in such a way that the result will yield enough contextual implications (and other cognitive effects) to make the utterance relevant as expected.

On this approach, interpreting an utterance is like solving a complex simultaneous equation, and the interpretation process is crucially seen as carried out in parallel rather than in sequence. It is not a matter of *first* identifying the explicit content, *then* supplying contextual assumptions and *then* deriving contextual implications (and other cognitive effects), but of mutually adjusting tentative hypotheses about explicit content, context and cognitive effects, with each other and with the presumption of relevance, and stopping at the first overall interpretation that makes the utterance relevant in the expected way. In interpreting (3b), for instance, Peter will expect it to achieve relevance by implying a response to his proposal in (3a), and this places a strong constraint on the route he will take in developing the encoded logical form into a fully propositional form: it must be such that it combines with easily available contextual assumptions to imply a response of the expected type (on mutual adjustment, see Sperber and Wilson 1998; Wilson and Sperber 2002).

To avoid proliferating notions of 'what is said', Sperber and Wilson (1986/1995: 182) introduced the term 'explicature', on the analogy of Grice's 'implicature', to refer to what is explicitly communicated. An explicature has two defining features: (a) it is a communicated proposition (i.e. part of the speaker's meaning), and (b) it is identifiable by a combination of decoding and inference (i.e. by inferentially developing an encoded logical form into a fully propositional form). Everything else communicated is an implicature. On this approach, the explicit–implicit distinction is exhaustive – a communicated proposition must be either an explicature or an implicature – but explicatures vary in the relative proportions of decoding and inference involved. Compare Mary's utterance in (3b) with the alternative formulations in (7a)–(7c):

(3')   b. He has to finish a paper.
(7)   a. Billy has to finish a paper.
        b. Billy Smith has to finish writing a paper.
        c. Billy Smith has to finish writing an academic paper soon.

Although the explicature is the same in all cases, each of (7a–c) involves more decoding and less inference than its predecessor, and intuitively makes the speaker's meaning more explicit. Explicitness is therefore definable not only as a yes–no matter but as a matter of degree: the greater the relative contribution of decoding, and the smaller the relative contribution of pragmatic inference, the more explicit the speaker's meaning will be (Sperber and Wilson 1986/1995: 182).

'Explicature' was intended as a theory-neutral term to be used in any framework, and it has been widely (though by no means universally) adopted.[16] Some writers (notably Bach 1994, 2010) object to it on terminological grounds, and since the objection raises an issue of substance, it is worth a brief mention here. Bach sees use of the term 'explicature' as misleading because what is communicated is not made 'fully explicit', and proposes the term 'impliciture' instead:

> What [relevance theorists] regard as explicit is, in general, not fully explicit but partly implicit. Indeed, this is suggested by their term 'explicature', which is a cognate of 'explicate', not 'explicit'. To explicate something is to spell it out, and to spell out the explicature of an utterance would be to make fully explicit what has in fact been left partly implicit. That is why I call this partly implicit content an 'impliciture' (the term should not suggest that all of an impliciture is implicit). (Bach 2010: 131)

To which a relevance theorist might reasonably respond: if 'impliciture' is an appropriate name for a communicated proposition that is partly explicit and partly implicit, why isn't 'explicature' equally appropriate?[17] How is the substitution of 'impliciture' for 'explicature' a step forward?

But there is a more substantive issue behind this apparent terminological dispute. For Bach, the only way to express a thought explicitly is to encode it, and the function of linguistic meaning is precisely to enable the encoding of thoughts:

> My main reason for thinking that at least some sentences express propositions is very simple. If none did, then none of our thoughts would be explicitly expressible. Indeed, it is arguable that all of our thoughts are explicitly expressible, in which case for every thought there is at least one sentence that would express it explicitly. (Bach 2010: 129)

For Bach, 'explicit' is an absolute term, like 'empty', and anything less than 'fully explicit' is not explicit at all. For relevance theorists, the function of linguistic meaning is not to encode the speaker's meaning but to provide *evidence* of it, and the idea that any thought (let alone all of them) can be fully encoded has been rejected from the outset (see e.g. Sperber and

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[16] Recanati (2004, 2010) refers to 'what is said' rather than 'explicature'; Levinson (2000) talks of implicatures 'intruding' into truth-conditional content, and Bach replaces 'explicature' with 'impliciture'. For thorough discussion, see Carston (2002, this volume); Carston and Hall (2012); Jodłowiec (2015).

[17] In fact, relevance theory's explicit–implicit distinction applies only to communicated propositions, and not to their constituents. One might describe the constituents of propositions as being 'tacitly' or 'overtly' (rather than 'explicitly' or 'implicitly') expressed.

Wilson 1986/1995: 191–3; Carston (2002: section 1.3). As Wilson and Sperber (2012b: ix) put it,

> There are always components of a speaker's meaning which her words do not encode: for instance, the English word 'he' does not specifically refer to [e.g. Billy in (3b)]. Indeed, we would argue that the idea that for most, if not all, possible meanings that a speaker might intend to convey, there is a sentence in a natural language which has that exact meaning as its linguistic meaning is quite implausible.

For relevance theorists, 'explicit' is both a classificatory and a comparative concept: any communicated proposition with a linguistically encoded conceptual constituent is explicit to some degree, and the greater the proportion of decoding to inference, the more explicit it will be. On this approach, any utterance can be made more explicit, and there is no such thing as 'full explicitness' (what would be the 'fully explicit' version of Mary's utterance in (3b)?). Thus, debates about the appropriateness of the term 'explicature' have their roots in a deeper disagreement about the role of linguistic meaning in communication. However, since it is generally agreed that 'explicatures' and 'implicitures' involve both decoding and inference, it is not legitimate to object to 'explicature' on the ground that it is partly explicit and partly implicit and defend 'impliciture', which is partly implicit and partly explicit too.

5. Lexical Pragmatics and the Literal–Figurative Distinction

Lexical pragmatics explores the application of the semantics–pragmatics distinction at the level of the word or phrase rather than the whole utterance. A central goal is to investigate the processes by which linguistically encoded word meanings are adjusted (or 'modulated') in use.[18] Well-studied examples of such processes include lexical narrowing (e.g. *drink* used to mean 'drink alcohol', or 'drink substantial amounts of alcohol'), approximation (e.g. *square* used to mean 'squarish') and metaphorical extension (e.g. *nightmare* used to mean 'bad experience'). A striking feature of much existing research in this area is that narrowing, approximation and metaphorical extension tend to be seen as distinct processes which lack a common explanation. Relevance theorists have been trying to develop a more unitary account based on two main claims. First, there is no presumption of literalness: linguistically specified word meanings are typically adjusted in the course of pragmatic interpretation, using available contextual information. Second, there is a continuum of cases of broadening, from approximation through to 'figurative' uses such as hyperbole and metaphor, which all involve the same interpretive mechanisms and can be explained in the same way. Here I will briefly compare relevance theory's approach to lexical narrowing and broadening with two alternative accounts.

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[18] See e.g. Recanati (1995, 2004, 2010); Carston (1997, 2002); Blutner (1998, 2004); Lascarides and Copestake (1998); Sperber and Wilson (1998, 2008); Glucksberg (2001, 2003); Fauconnier and Turner (2002); Wilson and Sperber (2002); Horn (2004, 2012); Recanati (2004, 2010); Wilson and Carston (2006, 2007, 2008); Huang (2009).

Lexical narrowing involves the use of a word or phrase to convey a more specific concept (with a narrower denotation) than the linguistically encoded meaning. For instance, *red* is typically narrowed in different directions in common adjective-noun combinations (e.g. *red eyes*, *red apple*, *red hair*, *red stamp*, etc.), picking out a different shade, distributed in different ways across the surface of the object, in different combinations. One approach which fits well with the stereotypical nature of much lexical narrowing is to treat it as a variety of default inference.[19] For instance, Levinson (2000: 37–8, 112–34) analyses narrowing as involving a default inference governed by an Informativeness heuristic ('What is expressed simply is stereotypically exemplified'), itself backed by a more general I-principle instructing the hearer to

> Amplify the informational content of the speaker's utterance, by finding the most specific interpretation, up to what you judge to be the speaker's m-intended point (…). (ibid: 114)

On this approach, hearers are seen as automatically constructing a stereotypical (or otherwise enriched) interpretation and accepting it in the absence of contextual counter-indications.[20] The alternative view, developed in relevance theory, is that lexical narrowing is a far more creative and flexible process, involving the construction of ad hoc, occasion-specific concepts influenced by a much wider range of cognitive and contextual factors than default approaches take into account. Thus, in order to satisfy expectations of relevance, the interpretation of *red eyes* might be narrowed to different degrees, and in different directions, in different contexts, yielding a range of occasion-specific ('ad hoc') concepts, e.g. [RED EYES]*, [RED EYES]**, and so on.[21] How might one choose between these two accounts?

For Levinson (2000), default narrowings are generalised conversational implicatures, to be dealt with in a theory of utterance-type meaning designed to explain how sentences are systematically paired with preferred interpretations regardless of the contexts in which they are used. Levinson contrasts this with a theory of utterance-token meaning, or speaker's meaning, such as relevance theory, which is designed to take context and speaker's intentions into account. It should follow that on Levinson's approach, information about the wider discourse context cannot affect the outcome of lexical narrowing, and the same default interpretation (specifying a certain shade and degree of redness, distributed over certain parts of the eye) must be automatically assigned to every occurrence of *red eyes*, and accepted in the absence of contextual counter-indications.

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[19] The notion of a default inference has been developed in many different ways; see e.g. Levinson (2000: section 1.5); Geurts (2009); Jaszczolt (2014).

[20] Notice, though, that the I-Principle does not explain how the hearer identifies the speaker's intended meaning, but presupposes that he has some independent means of judging what this is. To put it slightly unkindly, the I-Principle says 'Choose a more specific interpretation if you think this is what the speaker intended.' But the goal of a pragmatic theory is to explain how hearers decide that a certain meaning *was* intended, and given that lexical broadening is just as common as lexical narrowing, the I-Principle does not get us any closer to this goal.

[21] I will follow the usual practice of representing linguistically encoded meanings ('lexical concepts') in small capitals (RED) and occasion-specific meanings ('ad hoc concepts') in small capitals followed by one or more asterisks (RED*, RED**…).

As Noveck and Sperber (2007) point out, on the assumption that communicative systems tend to favour least-effort principles and to evolve in the direction of increasing efficiency, the value of a default-based approach will depend heavily on the distributional frequencies of interpretations on which the default interpretation proves acceptable and those in which it has to be overridden or cancelled for contextual reasons. To provide some evidence, Kolaiti and Wilson (2014) took the phrase *red eyes* – which does not seem obviously to favour either a default or a relevance-theoretic approach – and examined its occurrences in the Bank of English (a 56 million word corpus). They found that Levinson's default-based approach would guide the hearer in the right direction – and therefore help with processing costs – in roughly 50 per cent of cases (i.e. those involving e.g. crying, fatigue, flu/cold, eye damage, eczema, heat/sand and sore eyes in humans), but would be positively misleading and incur the costs of cancellation in the remaining 50 per cent of cases (i.e. those involving e.g. flash photography, animals, insects, supernatural beings, fictional entities and inconclusive cases with no obvious justification for narrowing at all). A more flexible inferential approach such as relevance theory would involve context-sensitive – and therefore relatively costly – fine tuning of the encoded lexical meaning in the full range of cases, but without the costs of default derivation followed by cancellation and reinterpretation in 50 per cent of the cases. As Kolaiti and Wilson point out, it is far from obvious that the statistical tendencies revealed by their corpus justify a default rather than an inferential account of lexical narrowing on grounds of economy of processing, yet this was the main rationale for the default approach proposed in Levinson (2000: section 1.3).

A further claimed advantage of default-based approaches to narrowing is that they explain the ready accessibility of 'normal', or 'stereotypical', narrowings in the absence of special contextual factors. However, there are other ways of explaining this ready accessibility without appeal to defaults, as in Horn's approach based on his R principle ('Say no more than you must') or relevance theory's approach, which predicts that 'normal' or 'stereotypical' interpretations will be less costly to construct in most circumstances, and will therefore be selected by the relevance-guided comprehension heuristic as long as they yield enough implications to satisfy the audience's expectations of relevance. Moreover, neo-Griceans such as Levinson, Horn and Blutner, who have been primarily concerned with lexical narrowings of a fairly stereotypical sort, have said little or nothing about how they would treat loose, hyperbolic or metaphorical uses of language, which are heavily context dependent and are standardly treated as violating Grice's first Quality maxim. As noted above, relevance theorists have consistently argued against this maxim and defended the view that there is a continuum between literal, loose and metaphorical uses rather than a set of clearly definable theoretical categories which play distinct roles in communication and comprehension. How might one assess these alternative approaches?

Lexical broadening involves the use of a word or phrase to convey a more general concept (with a broader denotation) than the linguistically encoded meaning. As noted earlier, a striking feature of much research in this area is that different interpretive procedures have been proposed for a range of phenomena which could all be seen as varieties of broadening.

Thus, approximation is often treated as a case of pragmatic vagueness involving different contextually-determined standards of precision (Lewis 1979; Lasersohn 1999). Metaphor and hyperbole are still widely seen as involving blatant violation of Grice's first Quality maxim, with the use of metaphor implicating a related simile or comparison and the use of hyperbole implicating a related weaker proposition (Grice, 1967/1989). Typically, these accounts do not generalise: metaphors are not analysable as rough approximations, approximations are not analysable as blatant violations of a maxim of truthfulness, and so on. Relevance theorists have been exploring the hypothesis that there is no clear cut-off point between literal use, approximation, hyperbole and metaphor, but merely a continuum of cases of broadening, which are all understood in the same way, using the same relevance-guided comprehension heuristic.[22] On this approach, approximation, metaphor and hyperbole are not natural kinds, which are dealt with by different mechanisms, and there is no fact of the matter about what is 'really' a metaphor or hyperbole and what is not. In what follows, I will use these terms as handy descriptive labels rather than theoretical concepts.

It is worth highlighting two important differences between the Gricean and relevance-theoretic approaches to broadening. First, Grice retains a sharp distinction between literal and figurative uses, and like many philosophers of language, he appears to see loose talk and rough approximations as falling on the literal rather than the figurative side (to be analysed as involving contextually determined standards of precision rather than blatant violation of a maxim of truthfulness). Second, he sees figurative uses such as metaphor and hyperbole as not contributing to truth-conditional content or 'what is said', but merely to what is implicated. By contrast, relevance theorists deny that there is a clear theoretical distinction between literal and figurative uses, and treat the ad hoc concepts derived via lexical-pragmatic processes as contributing to truth-conditional content (explicatures) across the whole 'literal–figurative' continuum.

In the light of this, consider the use of *painless* in (8):

(8)   *Dentist to patient*: The injection will be painless.

On a relevance-theoretic approach, *painless* in (8) might be taken to convey either its literal meaning, PAINLESS ('with no pain') or an approximation, PAINLESS* ('with almost no pain'). But the presence of the small amount of pain that would justify classifying *painless* in (8) as an approximation shades off imperceptibly into the amount of pain that would justify classifying it as a hyperbole, PAINLESS**, ('with less pain than expected or feared'). The Gricean framework predicts that this imperceptible shading off gives rise to a dramatic difference in processing on either side of the approximation/ hyperbole divide: on the one side, the speaker is making a genuine assertion, albeit under reduced standards of precision, whereas on the other side, she is merely implicating that the injection won't hurt too much. As far as I know, there is no experimental evidence whatsoever of such a dramatic processing difference between different degrees of broadening. In the relevance-theoretic framework, by

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[22] See e.g. Carston (2002, 2010), Wilson and Sperber (2002), Wilson and Carston (2006, 2007, 2008), Vega Moreno (2007), Sperber and Wilson (2008), Carston and Wearing (2011), and Wilson (2011a).

contrast, where both approximation and hyperbole contribute to truth-conditional content or explicatures, this imperceptible shading off between approximation and hyperbole is both predicted and explained.

All this suggests that the goal of an adequate pragmatic theory should be to provide a unitary account of the full range of lexical-pragmatic processes. However, largely as a result of historical accident (perhaps combined with differences in intellectual taste), the only explicit attempts so far at developing such an account have been made by relevance theorists. Neo-Griceans working on lexical narrowing have shown little interest in extending their account to cover metaphor or hyperbole; philosophers and literary scholars working on metaphor and hyperbole have shown no interest in extending their account to approximation or narrowing, and so on, and semanticists and logicians working on approximation have shown little interest in metaphor or hyperbole. This is not, of course, to claim that relevance theory offers the only possible unitary account: the challenge is to propose a better one.

6. The Conceptual–Procedural Distinction

The conceptual–procedural distinction was introduced into relevance theory by Diane Blakemore (1987, 2002) to account for differences between regular 'content' words such as *dog*, or *red*, which are standardly seen as encoding concepts that contribute to the truth-conditional (assertive) content of utterances, and discourse connectives such as *so*, or *after all*, which are standardly seen as non-truth-conditional. Blakemore suggested an original rationale for non-truth-conditional meaning, arguing that the function of discourse connectives is to guide the inferential comprehension process by imposing procedural constraints on the construction of intended contexts and cognitive effects. On this approach, *so* in (9a) does not affect the assertive content of the utterance, but is used to indicate that what follows it is a contextual implication of the fact that it is raining, while *after all* in (9b) is used to indicate that what follows it is intended to strengthen the preceding claim that the grass is wet:

(9)   a.   It's raining, *so* the grass is wet.
         b.   The grass is wet. *After all*, it's raining.

This approach has been insightfully applied to a wide range of discourse connectives in many languages.[23]

In an initial phase of research, the conceptual–procedural distinction was seen as coinciding with the distinction between truth-conditional and non-truth-conditional meaning. However, it soon became clear that this parallel breaks down in several ways. In the first place, illocutionary adverbials such as *frankly* in (10a), which are standardly seen as non-truth-conditional, have synonymous manner-adverbial counterparts which contribute to truth conditional content in regular ways, as in (10b) (Bach and Harnish 1979):

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[23] For recent discussions, see e.g. Iten (2005); Hall (2007); Unger (2007); Escandell-Vidal et al. (2011).

(10) a. Frankly, Bill should resign.
  b. John spoke frankly to Anne.

The simplest solution is to treat both uses of *frankly* as encoding the same concept, which contributes to truth-conditional content in (10b), but not in (10a). Wilson and Sperber (1993) analyse illocutionary adverbials as contributing to so-called 'higher-order explicatures', which carry information about the speaker's propositional or affective attitude, or the type of speech act she intends to perform, rather than contributing directly to truth-conditional content; thus, *frankly* in (10a) would be taken to indicate that the speaker is telling Bill frankly that he should resign. On this approach, illocutionary adverbials are both conceptual and non-truth-conditional.

In the second place, the parallel between procedural and non-truth-conditional meaning breaks down for a range of referential expressions such as *I*, *she*, *now* and *then*. These clearly contribute to truth-conditional content rather than implicatures, but are not plausibly seen as encoding full-fledged concepts, since their referents vary from context to context and have to be pragmatically inferred. Wilson and Sperber (1993) analyse them as encoding procedural constraints on reference resolution, so that *she*, for instance, restricts the set of potential referents to those appropriately picked out by use of a feminine pronoun. On this account, *she* is both procedural and truth-conditional. [24]

Finally, a variety of non-truth-conditional items such as mood indicators, sentence and discourse particles, interjections and intonation have been analysed as encoding a still further type of procedural constraint, this time on the construction of higher-order explicatures.[25] For instance, the addition of an interrogative particle, question intonation or interrogative word order to the utterance in (11) might trigger construction of the higher-order explicature in (12a), and use of the interjection *alas* or certain types of affective intonation in (11) might trigger the higher-order explicature in (12b):

(11) Bill was at the party.

(12) a. The speaker is asking whether Bill was at the party.
  b. The speaker is expressing regret that Bill was at the party.

Along these lines, the conceptual–procedural distinction might contribute in interesting ways to current debates on the distinction between descriptive and expressive meaning.[26]

The conceptual–procedural distinction as proposed in relevance theory raises several questions. For instance, given that procedural meaning need not contribute to truth

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[24] For procedural approaches along these lines, see e.g. Hedley (2007); Powell (2010); Scott (2013a,b); Escandell-Vidal et al. (2011).
[25] See e.g. Wilson and Sperber (1993); Fretheim (1998); Wilson (2000, 2011b); Wharton (2003, 2009); Wilson and Wharton (2006); Escandell-Vidal et al. (2011).
[26] See, e.g. Blakemore (2011, forthcoming); Carston (this volume).

conditions, in what sense is it properly semantic, and what explains the disparate nature of the procedural expressions described above?[27] I will respond briefly to both questions here.

According to Sperber and Wilson (1986/1995: 172–3), a linguistic expression is semantically interpreted by being put into systematic correspondence with other objects: e.g., with the formulas of another language, with possible states of the world, or with states of the user of the language. Regular 'content' words in natural language are widely seen as semantically interpreted in the first of these ways, by being put into systematic correspondence with constituents of a conceptual representation system or 'language of thought'; and conceptual representations are standardly seen as semantically interpreted in the second way, by being put into systematic correspondence with states of the world. Wilson (2011b) suggests that procedural expressions might be seen as semantically interpreted in the third way, by being put into systematic correspondence with states of the user of the language. The argument goes as follows.

According to recent increasingly modular approaches to human cognition (Sperber 2005; Carruthers 2006), the human cognitive system comprises a large array of domain-specific procedures with distinct developmental trajectories and breakdown patterns, which may be more or less highly activated in different circumstances, and are likely to alter their level of activation in response to different cues. Among the possible states of the user of a language will be those in which a certain cognitive mechanism or procedure is highly activated. Wilson (2011b) suggests that the function of the procedural expressions in a language may be to put the user of the language into a state in which some of these domain-specific cognitive procedures are highly activated (and hence more likely to be selected by a hearer using the relevance-guided comprehension heuristic).

One consequence of this proposal is that we might expect to find *clusters* of procedural items linked to different domain-specific capacities, with different developmental trajectories and breakdown patterns, and this seems to be just what we find. For instance, most languages have a cluster of procedural items (e.g. affective intonation, interjections, attitudinal particles) associated with mechanisms for emotion reading. The capacity to read emotions from facial and vocal cues is known to be present very early, and its outputs are particularly hard to analyse in conceptual terms (Wharton 2003, 2009); expressions of this type are therefore particularly suitable for procedural treatment. Most languages also have a cluster of procedural items (e.g. mood indicators, intonation, various types of discourse particle) linked to mindreading mechanisms. A naïve capacity for attributing mental states to others is also thought to be present very early, although its outputs may not be available to introspection or general inference until much later. Languages with grammaticalised honorific systems contain a further cluster of procedural expressions which might be seen as linked to the capacity for social cognition. Finally, most languages also have a cluster of procedural items (e.g. punctuation, prosody and various types of discourse particle) whose function is to guide the inferential comprehension process in one direction or another.

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[27] For discussion, see Bezuidenhout 2004; Escandell-Vidal et al. (2011).

As noted above, the standard relevance-theoretic account of procedural meaning treats procedural expressions as guiding the inferential comprehension process by constraining the construction of contexts and/or the derivation of cognitive effects. On the approach just outlined, there is more to be said about them than this. Notice that the capacities for mindreading, emotion reading and social cognition are not intrinsically linked to ostensive communication: for instance, we attribute mental states to others whether or not they are communicating with us. So whereas some procedural expressions (e.g. pronouns) activate mechanisms which are properly pragmatic, others activate mechanisms with a wide range of disparate functions, and this idea might be worth exploring further.

7. Concluding Remarks

A speaker producing an utterance has two distinct goals: to get the addressee to understand her meaning, and to persuade him to believe it. The addressee has two corresponding tasks: to understand the speaker's meaning, and to decide whether to believe it. The first task involves the pragmatic ability to infer the speaker's meaning from linguistic and contextual cues, by identifying the overtly intended cognitive effects. In (3b), for instance, Peter will understand Mary's meaning if he recognises that she intends him to believe they shouldn't ask Billy out that evening because he has to finish writing a paper soon. However, having understood her, he may not believe her, since he may suspect she is mistaken or lying.

The second task involves what Sperber et al. (2010) call a capacity for 'epistemic vigilance', which helps hearers avoid being accidentally or intentionally misinformed. There is a growing body of evidence suggesting that even at a very early age, children do not treat all communicated information as equally reliable, and that the capacity for epistemic vigilance develops alongside the capacity for inferential communication. Indeed, Sperber et al. (2010) suggest that comprehension, the search for relevance and epistemic vigilance may be seen as interconnected aspects of a single overall process whose goal is to make the best of communicated information.

One possible direction for future research would be to investigate points at which the capacities for mindreading, communication and epistemic vigilance might interact. For instance, there are well-known parallels between irony comprehension and the ability to cope with lies and deliberate deception; both correlate with success in standard second-order false-belief tasks, and Grice's account of irony sheds no light on why this should be so (Mascaro and Sperber 2009; Wilson 2009). Relevance theorists have long argued that irony requires a higher order of mindreading ability than ordinary literal or metaphorical utterances;[28] and exploring possible interactions between the mindreading, communicative and epistemic vigilance capacities in irony comprehension might well yield fruitful results.

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[28] On the current state of the art in irony studies, see Wilson and Sperber (2012a); Wilson (2013, 2014).

Moreover, in light of the arguments in section 6, given that the capacity for epistemic vigilance is distinct from those for mindreading and communication, we might expect to find clusters of procedural expressions specifically linked to epistemic vigilance mechanisms. According to Sperber et al. (2010) and Wilson (2011b), logical and discourse connectives, on the one hand, and grammaticalised indicators of epistemic modality and evidentiality, on the other, might well fall into this category, and this possibility would worth exploring further.

References

Bach, Kent (1994). 'Conversational impliciture', *Mind and Language* 9: 124–62.

Bach, Kent (2010). 'Impliciture vs explicature: What's the difference?', in B. Soria and E. Romero (eds), *Explicit Communication: Robyn Carston's Pragmatics.* Basingstoke: Palgrave, 126–37.

Bach, Kent and Harnish, R. M. (1979). *Linguistic Communication and Speech Acts.* Cambridge, MA: MIT Press.

Bezuidenhout, Anne (2004). 'Procedural meaning and the semantics/pragmatics interface', in C. Bianchi (ed.), *The Semantics/Pragmatics Distinction*. Stanford, CA: CSLI: 101–31.

Blakemore, Diane (1987). *Semantic Constraints on Relevance.* Oxford: Blackwell.

Blakemore, Diane (2002). *Relevance and Linguistic Meaning: The Semantics and Pragmatics of Discourse Markers*. Cambridge: Cambridge University Press.

Blakemore, Diane (2011). 'On the descriptive ineffability of expressive meaning ', *Journal of Pragmatics* 43: 3337–50.

Blakemore, Diane (forthcoming). 'Slurs and expletives: A case against a general account of expressive meaning', *Language Sciences*. Available online, July 2014: doi:10.1016/j.langsci.2014.06.018

Blutner, Reinhard (1998). 'Lexical pragmatics', *Journal of Semantics* 15: 115–62.

Blutner, Reinhard (2004). 'Pragmatics and the lexicon', in L. Horn and G. Ward (eds), *The Handbook of Pragmatics*, Oxford: Blackwell, 488–514.

Burton-Roberts, Noel (ed.) (2007). *Pragmatics.* Basingstoke: Palgrave.

Carruthers, Peter (2006). *The Architecture of the Mind.* Oxford: Oxford University Press.

Carston, Robyn (1988). 'Implicature, explicature and truth-theoretic semantics', in R. Kempson (ed.), *Mental Representation: The Interface between Language and Reality*. Cambridge: Cambridge University Press, 155–81.

Carston, Robyn (1997). 'Enrichment and loosening: Complementary processes in deriving the proposition expressed?', *Linguistische Berichte* 8: 103–27.

Carston, Robyn (1998). 'Informativeness, relevance, and scalar implicature', in R. Carston and S. Uchida (eds), *Relevance Theory: Applications and Implications.* Amsterdam: John Benjamins, 179–236.

Carston, Robyn (2002). *Thoughts and Utterances: The Pragmatics of Explicit Communication*. Oxford: Blackwell.

Carston, Robyn (2010). 'Metaphor: Ad hoc concepts, literal meaning and mental images', *Proceedings of the Aristotelian Society* 110: 295–321.

Carston, Robyn (2012). 'Relevance theory', in G. Russell and D. Graff Fara (eds), *Routledge Companion to the Philosophy of Language*. London: Routledge, 163–76.

Carston, Robyn and Hall, Alison (2012). 'Explicature and implicature', in H. J. Schmid (ed.) *Cognitive Pragmatics,* vol 4. Berlin: Mouton de Gruyter, 47–84.

Carston, Robyn, and Powell, George (2006). 'Relevance theory: New directions and developments', in E. Lepore and B. Smith (eds), *Oxford Handbook of Philosophy of Language*. Oxford: Oxford University Press, 341–60.

Carston, Robyn and Wearing, Catherine (2011). 'Metaphor, hyperbole and simile: A pragmatic approach', *Language and Cognition* 3: 283–312.

Clark, Billy (2013). *Relevance Theory*. Cambridge: Cambridge University Press.

Davis, Wayne (2014). 'Implicature', in Edward N. Zalta (ed.), *Stanford Encyclopedia of Philosophy* (Fall 2014 Edition). Available online at http://plato.stanford.edu/archives/fall2014/entries/implicature/

Escandell-Vidal, Victoria, Leonetti, Manuel, and Ahern, Aoife (eds) (2011) *Procedural Meaning: Problems and Perspectives*. (CRiSPI 25). Bingley: Emerald.

Fauconnier, Gilles and Turner, Mark (2002) *The Way We Think: Conceptual Blending and the Mind's Hidden Complexities*. New York: Basic Books.

Fretheim, Thorstein (1998). Intonation and the procedural encoding of attributed thoughts: The case of Norwegian negative interrogatives', in V. Rouchota and A. Jucker (eds), *Current Issues in Relevance Theory*. Amsterdam: John Benjamins, 205–36.

Glucksberg, Sam (2001). *Understanding Figurative Language: From Metaphors to Idioms*. Oxford: Oxford University Press.

Geurts, Bart. (2009). 'Scalar implicature and local pragmatics', *Mind and Language* 24: 51–79.

Glucksberg, Sam (2003). 'The psycholinguistics of metaphor', *Trends in Cognitive Science* 7: 92–6.

Grice, H. P. (1957). 'Meaning', *Philosophical Review* 66: 377–88. Reprinted in Grice 1989: 213–23.

Grice, H. P. (1967). 'Logic and conversation', William James Lectures, Harvard. Published in Grice 1989, 1–143.

Grice, H. P. (1989). *Studies in the Way of Words*. Cambridge, MA: Harvard University Press.

Hall, Alison (2007). 'Do discourse connectives encode concepts or procedures?', *Lingua,* 117: 149–74.

Hedley, Paul (2007). 'Anaphora, relevance and the conceptual/procedural distinction', DPhil dissertation. University of Oxford.

Horn, Laurence (2004). 'Implicature', in L. Horn and G. Ward (eds), *The Handbook of Pragmatics*. Oxford: Blackwell, 3–28.

Horn, Laurence (2012). 'Histoire d'*O: Lexical pragmatics and the geometry of opposition', in J.-Y. Béziau and G. Payette (eds), *New Perspectives on the Square of Opposition*. Bern: Peter Lang, 393–426.

Huang, Yan (2009). 'Neo-Gricean pragmatics and the lexicon', *International Review of Pragmatics* 1: 118–53.

Ifantidou, Elly (2014). *Pragmatic Competence and Relevance.* Amsterdam: John Benjamins.

Iten, Corinne (2005). *Linguistic Meaning, Truth Conditions and Relevance: The Case of Concessives.* Basingstoke: Palgrave.

Jaszczolt, Kasia (2014). 'Defaults in semantics and pragmatics', in Edward N. Zalta (ed.), *Stanford Encyclopedia of Philosophy* (Spring 2014 Edition). Available online at: http://plato.stanford.edu/archives/spr2014/entries/defaults-semantics-pragmatics/

Jodłowiec, Maria (2015). *The Challenges of Explicit and Implicit Communication: A Relevance-Theoretic Approach*. Frankfurt: Peter Lang.

Kolaiti, Patricia, and Wilson, Deirdre (2014). 'Corpus analysis and lexical pragmatics: An overview', *International Review of Pragmatics* 6: 211–39.

Lascarides, Alex and Copestake, Ann (1998). 'Pragmatics and word meaning', *Journal of Linguistics* 34: 55–105.

Lasersohn, Peter (1999). 'Pragmatic halos', *Language* 75: 522–51.

Levinson, S. (2000). *Presumptive Meanings: The Theory of Generalized Conversational Implicature*. Cambridge, MA: MIT Press.

Lewis, David (1979). 'Scorekeeping in a language game', *Journal of Philosophical Logic* 8: 339–359. Reprinted in D. Lewis 1983, *Philosophical Papers*, vol. 1. Oxford: Oxford University Press, 233–49.

Mascaro, Olivier, and Sperber, Dan (2009). 'The moral, epistemic and mindreading components of children's vigilance towards deception', *Cognition* 112: 367–80.

Noveck, Ira, and Sperber, Dan (2007). 'The why and how of experimental pragmatics', in N. Burton-Roberts (ed.), *Pragmatics*. London: Palgrave, 184–212. Reprinted in Wilson and Sperber 2012: 307–30.

Powell, George (2010). *Language, Thought and Reference*. Basingstoke: Palgrave.

Recanati, François (1995). 'The alleged priority of literal interpretation', *Cognitive Science* 19: 207–32.

Recanati, François (2004). *Literal Meaning*. Cambridge: Cambridge University Press.

Recanati, François (2010). *Truth-Conditional Pragmatics*. Oxford: Oxford University Press.

Scott, Kate (2013a). 'Pragmatically motivated null subjects in English: A relevance theory perspective', *Journal of Pragmatics* 53: 68–83.

Scott, Kate (2013b). 'This and that: A procedural analysis. *Lingua* 131: 49-65.

Soria, Belèn, and Romero, Esther (2010). *Explicit Communication: Robyn Carston's Pragmatics*. Basingstoke: Palgrave.

Sperber, Dan (1994). 'Understanding verbal understanding', in J. Khalfa (ed.), *What is Intelligence?* Cambridge: Cambridge University Press, 179–98.

Sperber, Dan (2005). 'Modularity and relevance: How can a massively modular mind be flexible and context dependent?', in P. Carruthers, S. Laurence and S. Stich (eds), *The Innate Mind: Structure and Content*. Oxford: Oxford University Press.

Sperber, Dan, Clément, Fabrice, Heintz, Christoph, Mascaro, Olivier, Mercier, Hugo, Origgi, Gloria, and Wilson, Deirdre (2010). 'Epistemic vigilance', *Mind and Language* 25: 359–93.

Sperber, Dan, and Wilson, Deirdre (1986). *Relevance: Communication and Cognition*. Oxford: Blackwell. Second edition with a new postface, 1995.

Sperber, Dan, and Wilson, Deirdre (1998). 'The mapping between the mental and the public lexicon', in P. Carruthers and J. Boucher (eds), *Language and Thought: Interdisciplinary Themes*. Cambridge: Cambridge University Press, 184–200. Reprinted in Wilson and Sperber 2012b: 31–46.

Sperber, Dan, and Wilson, Deirdre (2002). 'Pragmatics, modularity and mindreading', *Mind and Language* 17: 3–26. Reprinted in Wilson and Sperber 2012b: 261–78.

Sperber, Dan, and Wilson, Deirdre (2005). 'Pragmatics', in F. Jackson and M. Smith (eds), *Oxford Handbook of Contemporary Philosophy*. Oxford: Oxford University Press, 468–501. Reprinted in Wilson and Sperber 2012b: 1–27.

Sperber, Dan, and Wilson, Deirdre (2008). 'A deflationary account of metaphors', in R. Gibbs (ed.), *The Cambridge Handbook of Metaphor and Thought*. Cambridge: Cambridge University Press, 84–105. Reprinted in Wilson and Sperber 2012b: 97–122.

Sperber, Dan, and Wilson, Deirdre (forthcoming). 'Beyond speaker's meaning'. *Croatian Journal of Philosophy*.

Unger, Christoph (2007). *Genre, Relevance and Global Coherence: The Pragmatics of Discourse Type*. Basingstoke: Palgrave.

Van der Henst, Jean-Baptiste, Carles, Laure, and Sperber, Dan (2002). 'Truthfulness and relevance in telling the time', *Mind and Language* 17: 457–66.

Van der Henst, Jean-Baptiste, Sperber, Dan, and Politzer, Guy (2002). 'When is a conclusion worth deriving? A relevance-based analysis of determinate relational problems', *Thinking and Reasoning* 8: 1–20.

Van der Henst, Jean-Baptiste, and Sperber, Dan. (2004). 'Testing the cognitive and communicative principles of relevance', in I. Noveck and D. Sperber (eds), *Experimental Pragmatics.* Basingstoke: Palgrave, 141–71. Reprinted in Wilson and Sperber 2012b: 279–306.

Vega Moreno, Rosa (2007). *Creativity and Convention: The Pragmatics of Everyday Figurative Speech.* Amsterdam: John Benjamins.

Wharton, Tim (2003). 'Interjections, language and the 'showing–saying' continuum', *Pragmatics and Cognition* 11: 39–91.

Wharton, Tim (2009). *Pragmatics and Non-Verbal Communication.* Cambridge: Cambridge University Press.

Wilson, Deirdre (2000). 'Metarepresentation in linguistic communication', in D. Sperber (ed.), *Metarepresentations: A Multidisciplinary Perspective.* Oxford: Oxford University Press. Reprinted in Wilson and Sperber 2012: 230–58.

Wilson, Deirdre (2009). 'Irony and metarepresentation, *UCL Working Papers in Linguistics* 21: 183–226.

Wilson, Deirdre (2011a). 'Parallels and differences in the treatment of metaphor in relevance theory and cognitive linguistics', *Intercultural Pragmatics* 8: 177–96.

Wilson, Deirdre (2011b). 'The conceptual–procedural distinction: Past, present and future', in Escandell-Vidal, Leonetti and Ahern (eds), 3–23.

Wilson, Deirdre (2013). 'Irony comprehension: A developmental perspective' *Journal of Pragmatics* 59: 40–56.

Wilson, Deirdre (2014). 'Irony, hyperbole, jokes and banter', in J. Blochowiak, C. Grisot, S. Durrleman-Tame, and C. Laenzlinger (eds), *Papers Dedicated to Jacques Moeschler*. Geneva, http://www.unige.ch/lettres/linguistique/moeschler/Festschrift/Festschrift.php.

Wilson, Deirdre, and Carston, Robyn (2006). 'Metaphor, relevance and the "emergent property" issue', *Mind and Language* 21: 404–33.

Wilson, Deirdre, and Carston, Robyn (2007). 'A unitary approach to lexical pragmatics: Relevance, inference and ad hoc concepts, in N. Burton-Roberts (ed.), *Pragmatics.* Basingstoke: Palgrave, 230–59.

Wilson, Deirdre, and Carston, Robyn (2008). 'Metaphor and the "emergent property" problem: A relevance-theoretic treatment'. Elisabeth Camp (ed.), *Baltic International Yearbook of Cognition, Logic and Communication*, vol 3, A Figure of Speech. Kansas: New Prairie Press. Available online at http://www.thebalticyearbook.org/

Wilson, Deirdre, and Sperber, Dan (1981). 'On Grice's theory of conversation', in P. Werth (ed.), Conversation and Discourse. London: Croom Helm, 155–78. Reprinted in A. Kasher (ed.), 1998, *Pragmatics: Critical Concepts*, vol. IV. London: Routledge, 347–68.

Wilson, Deirdre, and Sperber, Dan (1993). 'Linguistic form and relevance', *Lingua* 90: 1–25. Reprinted in Wilson and Sperber 2012b: 149–68.

Wilson, Deirdre, and Sperber, Dan (2002). 'Truthfulness and relevance', *Mind* 111: 583–632. Reprinted in Wilson and Sperber 2012b: 47–83.

Wilson, Deirdre, and Sperber, Dan (2004). 'Relevance theory', in L. Horn and G. Ward (eds), *The Handbook of Pragmatics*. Oxford: Blackwell, 607–32.

Wilson, Deirdre, and Sperber, Dan (2012a). 'Explaining irony', in Wilson and Sperber 2012b: 123–45.

Wilson, Deirdre, and Sperber, Dan (2012b). *Meaning and Relevance*. Cambridge: Cambridge University Press.

Wilson, Deirdre, and Wharton, Tim (2006). 'Relevance and prosody', *Journal of Pragmatics* 38: 1559–79.

Zufferey, Sandrine (2015). *Acquiring Pragmatics: Social and Cognitive Perspectives*. Abingdon: Routledge.