Linguistic Meaning, Communicated Meaning and Cognitive Pragmatics[*]

Robyn Carston

Abstract
Within the philosophy of language, pragmatics has tended to be seen as an adjunct to, and a means of solving problems in, semantics. A cognitive-scientific conception of pragmatics as a mental processing system responsible for interpreting ostensive communicative stimuli (specifically, verbal utterances) has effected a transformation in the pragmatic issues pursued and the kinds of explanation offered. Taking this latter perspective, I compare two distinct proposals on the kinds of processes, and the architecture of the system(s), responsible for the recovery of speaker meaning (both explicitly and implicitly communicated meaning).

1. Pragmatics as a Cognitive System

1.1. From Philosophy of Language to Cognitive Science

Broadly speaking, there are two perspectives on pragmatics: the 'philosophical' and the 'cognitive'. From the philosophical perspective, an interest in pragmatics has been largely motivated by problems and issues in semantics. A familiar instance of this was Grice's concern to maintain a close semantic parallel between logical operators and their natural language counterparts, such as 'not', 'and', 'or', 'if', 'every', 'a/some', and 'the', in the face of what look like quite major divergences in the meaning of the linguistic elements (see Grice 1975, 1981). The explanation he provided was pragmatic, i.e. in terms of what occurs when the logical semantics of these terms is put to rational communicative use.

Consider the case of 'and':

(1) a. Mary went to a movie and Sam read a novel.
b. She gave him her key and he opened the door.
c. She insulted him and he left the room.

While (a) seems to reflect the straightforward truth-functional symmetrical connection, (b) and (c) communicate a stronger asymmetric relation: temporal sequence in (b) and a cause-consequence relation in (c). The semantic options for accounting for this are unappealing: either a three-way ambiguity (hence three lexical items 'and', only one of which is semantically identical with the logical conjunction operator), or a single item whose semantics is considerably richer than the logical operator, in that it includes temporal and causal features. However, we don't have to accept either of these. The Gricean approach maintains that the natural language connective is unambiguously truth-functional and explains the richer

[*] Many thanks to Richard Breheny, Sam Guttenplan, Corinne Iten, Deirdre Wilson and Vladimir Zegarac for helpful comments and support during the writing of this paper.

Address for correspondence: Department of Phonetics & Linguistics, University College London, Gower Street, London WC1E 6BT, UK.
Email: robyn@linguistics.ucl.ac.uk

connections as a function of maxims concerning proper conversational practice; what the words 'say' (the semantics of the utterance) and what the speaker means diverge. So, in the case of (1c), for instance, 'what is said', or the proposition expressed, is a truth-functional conjunction while, on the basis of considerations of communicative informativeness and/or relevance, we infer that 'what the speaker meant' is that there is a cause-consequence relation between the conjuncts:

(2) what is said: P & Q
what is meant: Q IS A CONSEQUENCE OF P

The role of pragmatics is essentially to siphon off any elements of understood meaning that might complicate the semantics and interfere with the hoped-for parallels between logic and natural language. The proposition meant is a conversational *implicature* and implicatures, which are the result of such extra-linguistic considerations as communicative appropriateness, have no bearing at all on the truth conditions of the utterance. Each of the 'and' conjunction cases in (1) is true provided just that each of the conjunct clauses is true.

On this view, the role of the communicative norms (truthfulness, informativeness, relevance, etc) is confined to the inferential derivation of implicatures; the central truth-conditional core of the utterance is given semantically. This Gricean implicature gambit has been widely employed by semanticists in order to defend a favoured semantic analysis of some natural language expression. For instance, Neale (1990) has preserved a Russellian quantificational semantics for definite descriptions by treating their apparent referentiality on particular uses as a case of conversational implicature. Others have claimed that the two sentences in (3) (with different but co-referring names) express the same proposition and are truth-conditionally equivalent, with the obvious difference between them being captured at the level of implicature (for discussion, with dissociation, see Recanati 1993, 17.2):

(3) a. Lois Lane believes Superman is valiant.
b. Lois Lane believes Clark Kent is valiant.

The advent of cognitive pragmatics, specifically of the relevance-theoretic approach, has brought a rather different orientation: 'pragmatics' is a capacity of the mind, a kind of information-processing system, a system for interpreting a particular phenomenon in the world, namely human communicative behaviour (see Sperber & Wilson (1986/95) and this volume). It is a proper object of study in itself, no longer to be seen as simply an adjunct to natural language semantics. Set within a cognitive-scientific framework, this kind of pragmatic theorising is answerable to quite different sources of evidence and criteria of adequacy from that of any philosophical analytical investigation. For instance, evidence from children's communicative development, from people with specific communicative and interpretive difficulties or deficits and from certain psycholinguistic experiments on comprehension may well have a bearing on an account of how the pragmatic system works, as may facts about the functioning and architecture of other mental capacities which interact with the utterance comprehension system, such as the language faculty and the so-called 'theory of mind' mechanism for interpreting people's behaviour in terms of certain of their mental states (beliefs, desires, intentions). Many of the papers in this issue reflect the way in which these sorts of considerations bear on pragmatics (see, in particular, Bloom, Happe & Loth, Langdon, Davies & Coltheart, and Papafragou).

There are (at least) three possible stances on the domain of pragmatics and so on what sort of a cognitive system it is. In order of increasing specificity, these positions are that: (a) It is a system for interpreting human actions/behaviour in terms of the mental states (beliefs,

intentions) underlying them (i.e. it is identical to the general 'theory of mind' system); (b) It is a system for the understanding of *communicative* behaviour, that is, for figuring out what the producer of the ostensive behaviour is trying to communicate; (c) It is dedicated to the understanding of specifically *linguistic* communicative behaviour. Obviously, no matter which of these one takes as the domain of pragmatics, linguistic communication is included, so there must be an interface with natural language semantics, but on this cognitively-oriented approach to pragmatics, natural language semantics is not taken to be the point of investigative departure. The relevance-theoretic account advocates the second position: the domain of pragmatics is a natural class of environmental phenomena, that of ostensive (= communicative) stimuli; verbal utterances are the central case, but not the only one, and they themselves are frequently accompanied by other ostensive gestures of the face, hands, voice, etc, all of which have to be interpreted together if one is to correctly infer what is being communicated. For the most part in this paper, I will focus on linguistic ostensive stimuli (i.e. utterances).

The move from the 'semantic adjunct' view to the 'cognitive system' view of relevance theory brings a range of changes with it. The components of the theory are quite different from those of Gricean and other philosophical descriptions; they include on-line cognitive processes, input and output representations, processing effort and cognitive effects (see Sperber & Wilson, this volume). The phenomenon of conversational implicature is no longer thought of as a 'useful tool for philosophical analysis', but rather as a representational level, derived in a particular way and playing a particular role in the process of understanding. The semantics of the linguistic expression type employed in an utterance, while clearly crucial to comprehension, is seen as having just an evidential, rather than a fully determining, role in the identification of what a speaker has explicitly communicated ('what is said'). This is most obvious in the case of subsentential utterances, which abound in actual communication. These are generally blatantly subpropositional, so have no determinate truth conditions as a matter of their intrinsic linguistic meaning (or even linguistic meaning topped up by contextual disambiguation and reference determination).

Consider the following very ordinary situation: it's breakfast time and, coming into the kitchen, I see my companion searching around in the lower reaches of a cupboard; knowing his breakfast habits, I guess that he's looking for a jar of marmalade and I utter:

(4) On the top shelf.

Although the proposition I have expressed here is something like *The marmalade is on the top shelf*, the linguistic semantic input to the pragmatic processor is, arguably, just whatever meaning the language confers on that prepositional phrase, that is, a far from fully propositional logical form, one which consists of just a location constituent (which denotes a property).

Given that, on the particular cognitive conception of pragmatics adopted here, the content of a communicative intention may be inferred in the complete absence of any coded material (say, on the basis of just an ostensive facial or hand movement), it is not surprising that when a code is involved it need do no more than provide whatever clues, whatever piece of evidence, the speaker judges necessary to channel the inferential process in the right direction. The linguistically encoded element of an utterance is not generally geared towards achieving as high a degree of explicitness as possible, but rather towards keeping processing effort down (no more than is necessary for the recovery of the intended cognitive effects), so information that is clearly already highly activated in the addressee's mind ('*The marmalade is* here somewhere', for instance) is often not given linguistic expression.

In the next subsection, I outline a distinction between two kinds of explanation of mental activity, with a view to considering the kind appropriate for an account of pragmatics

construed as a cognitive system as opposed to that more characteristic of philosophical accounts in the Gricean tradition.

1.2. Levels of Explanation: the Personal and the Sub-Personal

The distinction between the 'personal' and the 'sub-personal' levels of explanation of human behaviour was first introduced by Daniel Dennett (1969). Persons are conscious thinking agents, who engage in actions (voluntary behaviours) which can be explained in terms of reasons, that is, in terms of commonsense psychological attributions of beliefs, desires and practical inferences that would normally lead to such actions. A mundane example of such personal-level explanation is the following: X picked up her umbrella before she went out of doors because she believed it was going to rain and she wanted to stay dry. This Intentional (belief/desire) explanation makes her action reasonable or justified, makes it an intelligible behaviour. The hallmark of this sort of explanation is that it is normative, it is given in terms of what *ought* to be the case; we find someone intelligible as a person by interpreting her behaviour as embedded in a wider pattern of rational activity (see Elton 2000, 2). For instance, we might explain what a speaker meant by her utterance in terms of what it would be rational for her to have meant given the words she used in the particular context.

Sub-personal explanation, on the other hand, deals in entities and properties that can be shown to play a *causal role* in the action or behaviour, without necessarily standing in rational or normative relations to it. A physiological account in terms of the neuronal activity in the brain which accompanies the production, or the understanding, of an utterance would have nothing to do with considerations of people as agents with reasons and would be an obvious instance of a sub-personal explanation. However, if the current cognitive-scientific case for an autonomous level of unconscious syntactically-driven mental computation holds, there would seem to be another level of sub-personal explanation, a psychological level of information-processing mechanisms, which is, arguably, not reducible to the neurological (see Davies 2000). Talk of the sub-personal level of description and explanation in this paper is directed solely at this assumed level of psychological mechanisms.

On the assumption that this is a distinction which has useful application to all areas of mental theorising (something that might be questioned), let us consider how it stands for the case of pragmatics. At which level is an account of utterance interpretation (to be) conducted, the personal or the sub-personal (or both)? Discussion of pragmatics within the philosophy of language is most often conducted at the level of the person (the hearer/interpreter as person reasoning about the speaker/actor as person). For instance, Recanati (this volume, p.00) presents the Gricean view of pragmatics, one which he largely endorses, as follows: 'It [pragmatic interpretation] is not concerned with language per se, but with human action. When someone acts, whether linguistically or otherwise, there is a reason why she does what she does. To provide an interpretation for that action is to find that reason, that is, to ascribe the agent a particular intention in terms of which we can make sense of the action. ... Pragmatic interpretation is possible only if we presuppose that the agent is *rational*. ...' On this view of pragmatics, understanding an utterance is one instance of a more general personal-level activity of interpreting other people's purposeful behaviour: the hearer's interpretation of the speaker's linguistic behaviour rests on the assumption that the speaker is a rational agent acting in accordance with certain norms (truthfulness, an appropriate degree of informativeness, etc) and he attributes to her beliefs and intentions that provide reasons for her to have spoken as she did. The Gricean schema for figuring out a speaker's conversational implicature(s) from what he or she has said is a clear case of such personal-level practical belief/desire reasoning; it is conscious, rational and normative: 'He has said that *p*; there is no reason to suppose that he is not observing the maxims, or at least the CP [Cooperative Principle]; he could not be doing this

unless he thought that *q*; he knows (and knows that I know that he knows) that I can see that the supposition that he thinks that *q* is required; he has done nothing to stop me thinking that *q*; he intends me to think, or is at least willing to allow me to think, that *q*; and so he has implicated that *q*' (Grice 1975, 50).

The relevance-theoretic approach, on the other hand, embedded as it is within the assumptions and methods of current cognitive science, aims at a causal mechanistic account, an account in terms of the processes of interacting sub-personal systems. In recent years, this orientation has become particularly clearly established with the proposal that the comprehension system is a mental *module*: it is fast and automatic, and, more crucial to the position, it is domain-specific, in that it is activated exclusively by ostensive stimuli and employs its own proprietary concepts and processing strategies and routines (see Sperber 1994b and Sperber & Wilson, this volume). This move constitutes a leap across the Fodorian modular/nonmodular divide (Fodor 1983, 2000). Fodor's persistent claim is that while input and output systems are domain-specific, encapsulated systems, that is, modules, the central conceptual systems are architecturally unstructured and holistic, that is, nonmodular. Alan Leslie and others are currently making the modularity claim for another central interpretive system, the 'theory of mind' mechanism (ToMM) (see, for instance, Scholl & Leslie 1999, Leslie 2000a, 2000b). The two systems are closely related (if not one and the same, as some have claimed): the theory of mind system interprets the behaviour of others by attributing to them such Intentional (that is, world-representing) mental states as beliefs, desires and intentions, and the pragmatic comprehension system interprets communicative behaviour in terms of an intention on the part of the speaker to bring about a certain belief state in the addressee. Currently, the idea is being developed that the latter is a sub-system of the former, that is, that the relevance-based comprehension module may be a sub-module of the more general mental-state attributing module (see Sperber 2000 and Sperber & Wilson, this volume).

The explanatory vocabulary in these (sub-personal-level) accounts of how we interpret each other's behaviour (whether it is communicative or noncommunicative) includes the propositional attitude terminology ('intention', 'belief', etc) which is typical of explanation at the level of the person. In effect, the 'theory of mind' mechanism is an information-processing system which, in a presumably limited, unconscious and automatic way, computes interpretations which are a counterpart to conscious, rational and reflective personal-level explanations of human actions. Some of the mental states which might be cited as *reasons* for a particular action by a personal-level thinker, intent on making a person's behaviour intelligible, are given a sub-personal *causal* status in the workings of the 'theory of mind' mechanism. So, for instance, an explanation along the lines of 'he *believes* the bus is about to arrive, and he *wants* to get on it and ...' for someone's behaviour of running towards a bus-stop might occur as part of a rationalising personal-level explanation or as an interpretive output of the theory of mind mechanism. Much the same convergence of personal-level explanation and output of a sub-personal mechanism appears to hold for utterance interpretation; a personal-level explanation might have the form 'her reason for saying that it is late is that she wants her addressee to believe that it is time to leave' and this might be matched in the sub-personal comprehension mechanism by an input representation, 'she has said it is late', and an output representation, 'she intends me to believe that (she wants me to believe that) it is time to leave' (see Sperber 1994a for discussion of the multi-level metarepresentation here). Of course, the unconscious inferential processes internal to the modular mental systems, which mediate input and output representations, are very likely to be quite distinct from the conscious, normative rationalisations of personal-level thinking.

I assume that a cognitive-scientific account of pragmatics is, or at least aims at, sub-personal description and explanation[1]. However, this assumption does not go unchallenged, as will be seen in section 4, where Francois Recanati's account of pragmatic processes is compared with the relevance-theoretic account. In the next section, I outline some of the pragmatic processes that, according to both accounts, mediate the transition from linguistic meaning to explicit utterance content.

2. Pragmatic Processes of Explicature Derivation

2.1. Linguistic Input and Pragmatic Output

A major development in pragmatics since Grice's work is the recognition that linguistically decoded information is usually very incomplete and that pragmatic inference plays an essential role in the derivation of the proposition explicitly communicated. This is especially clear in the case of subsentential utterances, such as that discussed above, but it holds also for the vast majority of fully sentential cases. Various terms for this are used in the literature; the linguistic expression employed is described as providing an incomplete logical form, a 'semantic' skeleton, 'semantic' scaffolding, a 'semantic' template, a proposition/assumption schema (see, for instance, Sperber & Wilson 1986/95, Recanati 1993, Bach 1994, Taylor 2001). What all of these different locutions entail is that the linguistic contribution is not propositional, it is not a complete semantic entity, not truth-evaluable.

On the other hand, what is communicated, that is, the output of the pragmatic processor, is usually a set of fully propositional thoughts or assumptions, which are either true or false of an external state of affairs in the world. There are two kinds of communicated propositions, those that are explicitly communicated and those that are implicitly communicated There is some debate about the precise nature of this explicit/implicit distinction, how it is to be drawn, and whether any such two-way distinction can do justice to the levels and kinds of meaning involved in utterance interpretation. However, it is generally agreed that while implicatures are wholly external to, and distinct from, the linguistic meaning, the proposition explicitly communicated is, in some sense, built out of the semantic template contributed by the linguistic expression used. There are several different, and somewhat confusing, terms in currency for the propositions 'explicitly' communicated, including 'explicature' (in Sperber & Wilson's relevance theory), 'what is said' (in Recanati's reconstrual of the Gricean term) and 'implic*i*ture' (used by Kent Bach (1994), who takes this communicated proposition to be 'implicit' in what is actually said). Very much the same sort of entity is denoted by these three terms, though there are some major differences in the wider semantic/pragmatic frameworks they inhabit, one of which is discussed in section 4.

It is uncontentious that processes of disambiguation and indexical reference assignment play a crucial role in identifying the explicature of an utterance, but there is some disagreement about how they are effected, about what guides or drives them, specifically about whether or not the speaker's communicative intention plays a role (hence whether or not pragmatic maxims

---

[1] It has been suggested that the personal level, at least as conceived here, is not *primarily* a level of scientific description, since its explanations are not concerned with 'subsuming events under covering laws about how the world works'. The description of persons as 'experiencing, thinking subjects and agents' is characteristic of explanation in the philosophy of mind, though 'we do not rule out the possibility that these descriptions may also figure in scientific theories.' (Davies 2000, 93). For more on this contentious issue and on the relation between the personal and the sub-personal levels, see the special issue of *Philosophical Explorations*, volume 3 (1), January 2000.

or principles are involved). I won't attempt to argue it here, but given the plainly highly context-sensitive nature of sense selection and reference assignment, I take it that they are matters of speaker meaning, not determinable by any linguistic rule or procedure for mapping a linguistic element to a contextual value, and so just as dependent on pragmatic principles as the processes of implicature derivation. For more detail and argument, see Carston (2000, forthcoming b) and Recanati (2001, this volume).

Identifying the intended sense of an ambiguous word or structure and giving values to indexicals (also known as 'saturation') are mandatory processes, that is, they must be carried out in all contexts in which the ambiguous or indexical form is used. In the next two subsections, I consider two other kinds of contribution that, according to relevance theorists, and certain other cognitively-oriented theorists, pragmatics can make to the derivation of the explicature(s) of an utterance. These are optional or 'free' processes in the sense that they need not occur in every context in which the linguistic expression at issue is used.

2.2. Unarticulated Constituents and 'Free' Pragmatic Enrichment

There is a wide range of cases where it seems that pragmatics contributes a component to the explicitly communicated content of an utterance although there is no linguistic element indicating that such a component is required. That is, there is no overt indexical, nor is there any compelling reason to suppose there is a covert element in the logical form of the utterance, and yet a contextually supplied constituent appears in the explicature. Consider utterances of the following sentences, whose interpretation, in many contexts, would include the bracketed element which is provided on pragmatic grounds alone.

(5) a. Sally has a brain. [VERY GOOD BRAIN]
b. Something has happened. [SOMETHING IMPORTANT/TERRIBLE]
c. I've had a shower. [TODAY]
d. It's snowing. [IN LOCATION X]
e. Mary gave John a pen and he wrote down her address. [AND THEN] [WITH THE PEN MARY GAVE HIM]
f. Sam left Jane and she became very depressed. [AND AS A RESULT]

Given disambiguation and saturation of indexicals, each of these would, arguably, express a proposition (hence be truth-evaluable) without the addition of the bracketed constituent, but in most contexts that minimal proposition would not be what is communicated (speaker meant). One class of cases, represented here by (5a) and (5b), would express a trivial truth (after all, every person has a brain, and, at any given moment, something or other has happened), and it is easy to set up cases of obvious falsehoods (the negations of (5a) and (5b), for instance). Others, such as (5c) and (5d), are so vague and general as to be very seldom what a speaker would intend to communicate (they would not yield sufficient cognitive effects). Across most contexts in which these sentences might be uttered, obvious implicatures of the utterance would depend on the enriched proposition: in (5a), for instance, the implicated proposition that Sally will make an intelligent contribution to a debate; in (5c), the implicature that the speaker doesn't need to take a shower at the time of utterance. The relevance-theoretic position, then, is that, in the vast majority of contexts, it is the enriched propositions that are communicated as explicatures, with the uninformative, irrelevant, and, sometimes, truistic or patently false, minimal propositions playing no role in the process of utterance understanding.

While the issue with disambiguation and saturation processes is how they are brought about, whether with or without pragmatic principles geared to uncovering the speaker's meaning, the issue with free enrichment is more fundamental. It is whether or not there really is

any such process, so whether or not there are such things as constituents of the explicit content of the utterance which do not occur in any shape or form in the linguistic representation. Philosophers of language who insist on the psychological reality of the process include Recanati (1993, 2001) and Bach (1994, 2000). However, a current school of semantic thinking, represented by Stanley (2000, this volume), Stanley & Szabo (2000) and Taylor (2001), holds that if a contextually supplied constituent appears in the explicit content of an utterance then it must have been articulated in the logical form of the utterance, whether by an overt indexical or by a phonologically unrealised element (a covert indexical). In other words, the only pragmatic processes at work at this level are disambiguation and saturation, and there is a lot more saturation going on than the surface syntactic form reveals; any other process of pragmatic inference involved in understanding an utterance results in an *implicated* proposition.

What lies behind this denial of 'free' enrichment is a particular view of natural language semantics and its relation to linguistic communication (see Stanley, this volume). The claim is that the truth-conditional content of an utterance is entirely determined by (a) its logical form, and (b) the (context-relative) meanings of its most basic components (words or covert elements), that is, it satisfies a strict principle of semantic compositionality. This is essentially the Gricean position on 'what is said' but with a great many more indexical elements requiring contextual instantiation. Relevance theorists have a rather different view of linguistic semantics, one which also complies with strict compositionality but which is not truth-conditional. Linguistic semantics is a system of mappings between elements of linguistic form and certain kinds of cognitive information and, as already discussed, the result of these mappings is standardly a subpropositional schema for the (pragmatic) construction of fully propositional representations. Truth-conditional semantics is a distinct enterprise and its proper object is not linguistic expressions but fully propositional entities, such as thoughts and communicated assumptions (semantic/pragmatic hybrids). On this view of linguistic semantics, then, the possibility of constituents in the proposition explicitly communicated which have not been articulated in the logical form of the linguistic expression does not raise any semantic problems.[2]

2.3. Pragmatic Adjustments of Conceptual Encodings

Free enrichment is a process which involves the addition of a conceptual constituent to the decoded logical form; for example, 'it's snowing [IN ABERDEEN]'. There are other cases where it seems that a better way of construing what is going on is that a lexical concept appearing in the logical form is pragmatically adjusted, so that the concept understood as communicated by the particular occurrence of the lexical item is different from, and replaces, the concept it encodes; it is narrower or wider (or some combination of the two) than the

---

[2] There is now in the semantic/pragmatic literature quite a complex array of arguments for and against unarticulated constituents. Stanley (2000) and Stanley & Szabo (2000) have argued that, whenever there is thought to be a constituent of explicitly communicated content which has been recovered on wholly pragmatic grounds, it is really the value of a hidden indexical element in the linguistic logical form. In different ways, Bach (2000), Carston (2000), Breheny (this volume) and Recanati (forthcoming) defend the existence of unarticulated constituents and the pragmatic process of free enrichment. Stanley (this volume) claims to have found a new problem for advocates of pragmatic enrichment. He argues that, as presented by relevance theorists and by Bach (2000), it is a process that over-generates, making false predictions about possible interpretations of utterances. This allegation remains to be addressed.

lexical concept from which it was derived. Consider an utterance of (6a) by a witness at the trial of X who is accused of having murdered his wife; the utterance is a response to a question about X's state of mind at the time leading up to the murder:

(6) a. He was upset but he wasn't upset.
b. X WAS UPSET* BUT X WASN'T UPSET**

As far as its linguistically supplied information goes, this is a contradiction, but it was not intended as, nor understood as, a contradiction. The two instances of the word 'upset' were interpreted as communicating two different concepts of upsetness (as indicated in (6b) by the asterisks), at least one, but most likely both, involving a pragmatic narrowing of the encoded lexical concept UPSET; the second of the two concepts carries certain implications (e.g. that he was in a murdering state of mind) that the first one does not, implications whose applicability to X the witness is denying.

There are many other cases where any one of a wide range of related concepts might be communicated by a single lexical item; for instance, think of all the different kinds, degrees and qualities of feeling that can be communicated by each of 'tired', 'anxious', 'frightened', 'depressed', 'well', 'happy', 'satisfied', 'sweet', etc. In one context, an utterance of 'I'm happy' could communicate that the speaker feels herself to be in a steady state of low-key well-being, in another that she is experiencing a moment of intense joy, in yet another that she is satisfied with the outcome of some negotiation, and so on. The general concept HAPPY encoded by the lexical item 'happy' gives access to an indefinite number of more specific concepts, recoverable in particular contexts by relevance-driven pragmatic inference.

The examples considered so far have involved a narrowing or strengthening of the encoded concept, but there are others that seem to require some degree of widening or loosening. Consider what is most likely communicated by the highlighted lexical item in utterances of the following sentences:

(7) a. There is a *rectangle* of lawn at the back.
b. This steak is *raw*.
c. On Classic FM, we play *continuous* classics.
d. Mary is a *bulldozer*.

The area of lawn referred to in (7a) is very unlikely to be truly a rectangle (with four right angles, opposite sides equal in length); rather it is approximately rectangular, and this holds for many other uses of geometrical terms: a 'round' lake, a 'square' cake, a 'triangular' face, etc. In (7b), the steak, perhaps served in a restaurant, is not really raw but is much less cooked than the speaker wishes; in (7c), the classical music played on the radio station is interspersed with advertisements and other announcements, so not strictly 'continuous', and so on. In each case, a logical or defining feature of the lexically encoded concept is dropped in the process of arriving at the intended interpretation: EQUAL SIDES in the case of 'rectangle', UNCOOKED for 'raw', UNINTERRUPTED for 'continuous', MACHINERY for 'bulldozer'.

While the existence of a pragmatic process of 'free' enrichment, as discussed in the previous subsection, is disputed by some truth-conditional semanticists, the process of pragmatic concept construction has not (yet) been challenged by semanticists or Gricean-oriented pragmatists, perhaps because it is a relatively new player on the scene.[3] Although this

[3] For further discussion of the role of ad hoc concept construction within the relevance-theoretic view of utterance understanding and its implications for the account of metaphor, see Carston (1997) and (forthcoming a, chapter 5), Sperber & Wilson (1998),

process does not bring about a structural change in the transition from linguistic logical form to proposition explicitly communicated, as does free enrichment (expansion), it clearly does take us well away from encoded linguistic meaning and has no linguistic mandate, so marks yet another considerable departure from the Gricean semantic notion of 'what is said'.[4]

3. Relevance Theory and the Mutual Adjustment of Explicatures and Implicatures

According to relevance theory, the pragmatic inferential system employs the following strategy in order to arrive at the intended interpretation of the utterance:

(8) Consider interpretations (disambiguations, saturations, enrichments, implicatures, etc) in order of accessibility (i.e. follow a path of least effort in computing cognitive effects); stop when the expected level of relevance is achieved.

Interpretive hypotheses are made rapidly, on-line, and in parallel. The mechanism that mediates the inferences from logical form to communicated propositions is one of 'mutual parallel adjustment' of explicatures and implicatures, constrained by the comprehension strategy. The result should consist of (sets of) premises and conclusions making up valid arguments, but the important point is that the process need not progress strictly logically from the accessing of premises to the drawing of conclusions. For instance, a particular conclusion, or type of conclusion, might be expected on the basis of considerations of relevance and, via a backwards inference process, premises constructed (explicatures and implicatures) which will make for a sound inference to the conclusion. The process may involve several backwards and forwards adjustments of content before an equilibrium is achieved which meets the system's current 'expectation' of relevance.

I'll illustrate the process with an example which involves free enrichment. See Sperber & Wilson (1998) and, in particular, Wilson & Sperber (2000) for examples in which pragmatic concept construction plays a central role. Bob's utterance in (9) is a response to Ann's immediately preceding question. In such cases, expectations of relevance are quite constrained and specific since the question has indicated the sort of information that would be relevant (would have cognitive effects).

(9) Ann: Shall we play tennis?
Bob: It's raining.
Explicature: IT'S RAINING AT LOCATION$_{A/B}$
Implicated premise: IF IT'S RAINING IN LOCATION$_X$ THEN IT IS UNLIKELY THAT PEOPLE WILL PLAY TENNIS AT LOCATION$_X$
Implicated conclusion: ANN AND BOB WON'T PLAY TENNIS AT LOCATION$_{A/B}$

Wilson & Sperber (2000), and Breheny (1999) and (forthcoming). For his related notions of 'analogical transfer' and 'metonymical transfer', pragmatic processes which contribute to the proposition explicitly communicated, see Recanati (1993, section 14.4) and (1995).

[4] Many semanticists and pragmatists follow Grice in preserving a conception of 'what is said' which is minimally distinct from the semantics of the linguistic expression used. Bach (1994) aims for a wholly semantic notion, one which is free from any consideration of speaker intentions and allows for the contextual fixing of only 'pure' indexicals. In Carston (forthcoming a, chapter 2) and (forthcoming b), I have argued in some detail against there being any role for such a notion (intermediate as it is between linguistic expression type meaning and communicated propositions) in an account of the cognitive processes and representations involved in utterance interpretation.

In understanding Bob's utterance, the explicature constructed from the logical form has to be enriched with a location constituent in order that the implicated conclusion is properly warranted. In this case, the location is anchored to the place of utterance, though in a different context it might not be, so this is a matter of pragmatic inference.

The following step by step description of the pragmatic processes involved in understanding Bob's utterance in (10) is closely modelled on analyses given in Wilson & Sperber (2000):

(10) a. Bob has uttered sentence with logical form: [it is raining] (*Output of linguistic decoding*.)

b. Bob's utterance is optimally relevant to Ann. (*Presumption of relevance.*)

c Bob's utterance will achieve relevance by providing an affirmative or negative answer to Ann's question. (*Standard expectation created by the asking of a yes-no question*.)

d. If it is raining in a particular location then it is not likely that one can play tennis in that location. (*Highly accessible assumption which might help to answer Ann's question*.)

e. It is raining at Ann and Bob's location. *(First accessible enrichment of Bob's utterance which could combine with (d) to yield an answer to Ann's question.*)

f. Ann and Bob can't play tennis at their location.
(*Inferred from (d) and (e); satisfies (c); accepted as an implicature of Bob's utterance*.)

g. They can't play tennis at their location because it is raining at their location.
(*Further highly accessible implicature inferred from (d) and (e), which, together with (f) and various other (weaker) implicatures, such as (h), satisfies (b), the general expectation of relevance*.)

h. Ann and Bob will have to find some other entertainment.
They could go to the cinema, etc.

Bob has not given a direct yes/no answer to Ann's question; rather, Ann has to infer an implicated answer. The extra inferential effort required by Bob's indirect reply to Ann's question is offset by extra effects, specifically, the strongly communicated implicature in (10g) which supplies a reason for the negative answer to her question, and perhaps other weakly communicated implicatures, such as those in (10h).

Two caveats are in order here. First, I have given natural language paraphrases of explicatures and implicatures here which, as always, are merely suggestive of the actual conceptual representations involved. Second, as the comments above about the mutual adjustment process indicate, the steps in the derivation are not to be thought of as sequential. Interpretive hypotheses about aspects of explicit and implicit content are made on-line and adjusted in parallel until both the hearer's expectation of relevance is met and a final stable state of sound inference is achieved.

It is clear from just this one example and the general comments about the relevance-theoretic derivation process, that we have here a considerable departure from the widely held Gricean view of how conversational implicatures are derived and, so, of their derivational relation to the explicit content of the utterance. According to that view, they are inferentially derived on the basis of the *antecedently determined* 'what is said' and arise as a response to a consideration of why the speaker is saying what she said, what she means (communicatively intends) by saying it. As will be seen in the next (and final) section, this difference of conception is central to two opposing views on the cognitive architecture of the pragmatic

capacity.

4. How Many Pragmatic Systems?

As we have seen, there is a variety of conceptually distinct pragmatic tasks. These may or may not involve distinct kinds of process, and distinct kinds of process may or may not involve distinct mechanisms (or architectural units). The following three positions on these relationships have actually been taken up by different pragmatists:

[1] The various different pragmatic tasks are performed by processes that comprise a single system, which takes decoded linguistic meaning as its input and delivers the propositions communicated (explicatures and implicatures).

[2] There is a crucial split between the processes involved in deriving explicit utterance content, on the one hand, and the processes of implicature derivation, on the other, with the two sets of processes each belonging to a distinct cognitive system, the output of the first (explicature or 'what is said') being the input to the second.

[3] There are distinct processes for at least some of the (conceptually) distinct pragmatic tasks (disambiguation, indexical reference assignment, recovery of unarticulated constituents, speech act assignment, etc) and each of these distinct processes is performed by a distinct cognitive system.

The third position, which I won't explore here, has been adopted for purely practical reasons by some computationalists in attempts to provide an implementation of particular pragmatic tasks, and, on more theoretical grounds, by Asa Kasher (1991a, 1991b). The second position is the standard one (one system for the pragmatic processes involved in the recovery of the proposition expressed or explicature, and the other for implicature derivation). It is held by a range of people, whose outlooks otherwise diverge considerably: Grice, for whom conversational maxims were responsible for the derivation of implicatures, but not, it seems, for the pragmatic processes of disambiguation and indexical reference fixing required for a full identification of 'what is said'; the semantic theorists, Larson & Segal (1995, chapter 1), who assume there is a system for identifying the referents of indexicals which is distinct from a pragmatics system (for implicature generation); the post-Gricean pragmatist, Stephen Levinson (2000), who distinguishes a system of default rules for generating what he calls 'generalised' conversational implicature, which can contribute to the truth-conditional content of an utterance, hence to 'what is said', and a system of general communicative principles (probably relevance-based) for inferring particularised conversational implicatures; Recanati (1993, 1995, 2001, this volume), who makes a fundamental distinction between *primary* pragmatic processes and *secondary* pragmatic processes.

I will focus on position [2] as it is developed in Recanati's work. Primary pragmatic processes are all those that contribute to 'explicature' (or 'what is said', in his nonGricean, nonminimalist sense of the term), whether obligatory processes like saturation or optional ones like free enrichment; secondary pragmatic processes are responsible for implicature derivation. Although both kinds of pragmatic processes are wholly dependent on context (in the widest sense), they are very different in other respects: the primary ones are associative and free from considerations of the speaker's intention, while the secondary ones are properly inferential and require representation of the speaker's intention; the two kinds of processes are also governed by distinct principles (a principle of 'highest accessibility' for the primary processes, Gricean type norms for the secondary processes) and the primary ones are prior,

both logically and temporally, to the secondary ones. Indeed they are so fundamentally different as to belong to different levels of description: ' The determination of what is said takes place at a sub-personal level, ... But the determination of what the speaker implies takes place at the personal level, ...' (Recanati, this volume, p.00).

In all these distinguishing respects, this view is at odds with that of the relevance-theoretic account which, as should be evident from the preceding section, takes the first of the three positions laid out above. There is a single pragmatic comprehension system, informed by a single overarching principle: 'Every utterance (more broadly, ostensive stimulus) carries a presumption of its own relevance' (see Sperber & Wilson, this volume). The system operates in accordance with a comprehension procedure (given in (8) above) which is dedicated to the processing of communicative stimuli and distinct from the procedures of other systems (such as the general 'theory of mind' system). Recovery of the two kinds of communicated assumption, explicatures and implicatures, proceeds in parallel and is effected by a process of mutual adjustment which may involve processes of inference from implicature to explicature as well as from explicature to implicature. The function of this single pragmatics system is to recover speaker meaning, that is, what the speaker communicatively intended, but this is a sub-personal system and so does not require conscious reflection on what that intention is.

In the little space remaining, I will consider just two of the many differences between Recanati's binary position and the relevance-theoretic unitary position: (a) the question of the temporal order of processes of explicature and implicature derivation, and (b) the issue of kinds and levels of processing.

There is a reasonably clear sense in which explicatures are *logically prior* to implicatures: explicatures function as premises in sound patterns of inference in which (some, at least) implicatures are conclusions. But Recanati is also claiming that explicatures are *temporally prior*; they are the output of a system of primary pragmatic processes and the input to a system of secondary pragmatic processes which result in implicatures. If the relevance-theoretic view is right, however, there is no generalization to be made about which of the two kinds of communicated assumption is recovered first and functions as input to the recovery of the other; the parallel adjustment process entails that neither is wholly temporally prior to the other. An addressee may have quite specific expectations of relevance that, as it turns out, pertain to information which the speaker implicates, so that the pragmatic development of the linguistic logical form is, at least partly, made in order to provide inferential grounding for that implicature.

Setting aside the specifics of the relevance-theoretic view, there is a class of widely recognized implicatures, known as 'bridging' implicatures, which *have to* precede the full derivation of an explicature (see Clark 1977, Levinson 2000, Matsui 2000). These are contextual assumptions that must be accessed, whether or not they are already known to the addressee, in order to identify a referent. So, for instance, in order to identify the referent of 'the beer' in (11a), the addressee has to access the implicature in (11b):

(11) a. The picnic was awful. The beer was warm.
b. The beer was part of the picnic.

In the absence of any argument that denies the status of implicature to assumptions like those in (11b), they seem to present strong evidence in favour of a system of pragmatic interpretation which derives explicatures and implicatures in parallel.

Turning now to the issue of kinds of process and explanatory levels, consider the following statement by Recanati (this volume, p.00):

> As Grice emphasized, implicature-determination in the strict sense is a reflective process. Instead of merely retrieving what is said through the operation of unconscious, primary pragmatic processes, we reflect on the fact that the speaker says what he says and use that fact, together with background knowledge, to infer what the speaker means without saying it. As Millikan writes, 'the true communicator is in a position to tinker with the mechanisms of normal language flow, is sensitive to symptoms that the other is tinkering with these mechanisms, and can rise above these automatic mechanisms if necessary' (Millikan, 1984: 69). That is what happens in *special* cases. The retrieving of conversational implicatures, in particular, involves reflective capacities that are not exercised in what Millikan calls 'normal language flow'.

Leaving aside Millikan's own concerns and focussing just on Recanati's use of her views for his own purpose, there is a strong (and, to me, highly implausible) claim here that linguistic communication involving implicatures is special and abnormal, in some sense, that implicatures are only derived when something has gone awry with the normal automatic smooth processes of linguistic communication. With this claim in mind, let's consider some examples of utterances which clearly communicate an implicature, starting with the first example Grice gave when illustrating the role of his conversational maxims (Grice 1975, 51):

(12) A: I am out of petrol
B: There is a garage round the corner
(*Gloss*: B would be infringing the maxim 'Be relevant' unless he thinks, or thinks it possible that the garage is open, and has petrol to sell; so he implicates that the garage is, or at least may be, open, etc.)

Now, B could have given a more explicit response to A, one in which the information that petrol is currently being sold at a garage round the corner is part of what is said by the utterance. For instance, she could have uttered the sentence in (13):

(13) B': There is a garage round the corner which sells petrol and is open now.

According to the view just given, this utterance would have maintained the normal language flow while the one B actually gave, in (12), disrupts that normal flow. It is perhaps difficult to have a sure sense of what is meant by the notion of 'normal' language flow, but the exchange in (12) seems to be about as natural, normal and flowing a conversation as there is, while, arguably, the implicature-less one in (13) is somewhat awkward, being quite unnecessarily explicit (in the absence of any doubt about the functioning of the garage).

Furthermore, if there is any statistical basis to the use of the word 'normal', then Recanati's claim cannot be right, since the majority of our exchanges are implicature-laden. Note in this regard that, in (12), B has taken A to have implicated that she wants some petrol and his utterance is a response to that implicature. According to the relevance-theoretic single system view, the processes of explicature and implicature derivation proceed on-line, in parallel and in response to each other, without any major switch of processing mode, thereby reflecting what seems to be the normal communication flow of exchanges such as that in (12). This is what we would expect from a system which has evolved to solve the adaptive problem of figuring out a speaker's meaning, which *may* consist of just an explicature but, more often than not, consists of implicatures and explicature.

In the next example, the first part of B's utterance is a direct explicit response to A's question, but it raises a further (implicit) question '*what* does B want?', which the second segment of B's utterance answers indirectly; B implicates that she wants some paper:

(14) A: Do you want something?
B: Yes. # I've run out of paper.

Having processed B's utterance up to the point marked by #, A is very likely to have formed an anticipatory assumption schema [B wants __] for which the next section of B's utterance provides a completion. It so happens that the resulting proposition 'B wants some paper' is an implicature of the next part of B's utterance. Had the second unit been 'Some paper' or 'I want some paper', the answer would have been direct and the completed assumption schema would have been an explicature of the utterance. According to Recanati's view quoted above, the understood answer, that is the completed schema, 'B wants some paper', must be achieved by fundamentally different kinds and levels of processes in the two cases, and the one in which it is an implicature is in some way special, is brought about by a disruption in the linguistic communicative flow. However, this is not supported by intuitions about the two possibilities, and, in the absence of compelling arguments, it is difficult to see why we should adopt this view.

Moreover, if the idea that utterance comprehension processes include the formation of anticipatory hypotheses is correct, the binary view imposes a very odd requirement: particular hypotheses, such as the schema above, would have to be categorised as a feature of one kind of processing system (unconscious, subpersonal-level) in the case where it turns out to be completed as an explicature, but part of a distinct one (conscious, personal-level) when it is an implicature. According to the relevance-theoretic view, such anticipatory hypotheses about where the relevance of an utterance is going to lie are a common occurrence and, given the single system of interlocking processes of explicature and implicature derivation, the problem of their having to switch from one sort of status to another does not arise.

There clearly are times at which the normal communicative flow is disrupted: certain instances of garden-path utterances, especially when exploited by speakers for particular, often humorous, effects; some cases of complex figurative use which require an effortful conscious search for an interpretation; other cases where there is some apprehended difficulty in satisfying oneself that the intended interpretation has been reached (it doesn't seem sufficiently relevant, for instance). The appropriate distinction between modes of processing and levels of explanation would seem to be between, on the one hand, a modular (sub-personal) pragmatic processor which, when all goes well, quickly and automatically delivers speaker meaning (explicatures and implicatures), and, on the other hand, processes of a conscious reflective (personal-level) sort which occur only when the results of the former system are found wanting in some way.

To conclude, these interesting issues in the study of linguistic communication have arisen only since pragmatics has moved from its place of origin in philosophy to its new location within cognitive science. Clearly, there is a long way to go before they are fully resolved and it seems very likely that empirical evidence from experiments on the time course of processing, from child development and from people with communicative deficits will play an important part in their resolution.

Department of Phonetics and Linguistics
University College London

References

Bach, K. 1994: Conversational impliciture. *Mind and Language*, 9, 124-162.
Bach, K. 2000: Quantification, qualification, and context: a reply to Stanley and Szabo. *Mind and Language*, 15, 262-283.

Breheny, R. 1999: *Context-dependence and procedural meaning: the semantics of definites*. University College London PhD thesis.
Breheny, Richard. forthcoming: Maximality, negation and plural definites. Ms. Research Centre of English and Applied Linguistics, University of Cambridge.
Carston, R. 1997: Enrichment and loosening: complementary processes in deriving the proposition expressed? *Linguistische Berichte*, 8, Special Issue on Pragmatics, 103-127.
Carston, R. 2000: Explicature and semantics. *UCL Working Papers in Linguistics*, 12, 1-44. To appear in S. Davis & B. Gillon, (eds.), forthcoming. *Semantics: A Reader*. Oxford: Oxford University Press.
Carston, R. forthcoming a: *Thoughts and Utterances: the Pragmatics of Explicit Communication*. Oxford: Blackwells.
Carston, R. forthcoming b: Relevance theory and the saying/implicating distinction. In L. Horn & G. Ward (eds.), *Handbook of Pragmatics*. Oxford: Blackwells.
Clark, H. 1977: Bridging. In P. Wason & P. Johnson-Laird (eds.), *Thinking: Readings in Cognitive Science*, 411-420. Cambridge: Cambridge University Press.
Davies, M. 2000: Interaction without reduction: The relationship between personal and sub-personal levels of description. *Mind and Society*, 1, 87-105.
Dennett, D. 1969: *Content and Consciousness*. London: Routledge & Kegan Paul.
Elton, M. 2000: The personal/sub-personal distinction: an introduction. *Philosophical Explorations* 3, 2-5.
Fodor, J. 1983: *The Modularity of Mind*. Cambridge, Mass.: MIT Press.
Fodor, J. 2000: *The Mind Doesn't Work That Way*. Cambridge, Mass.: MIT Press.
Grice, H.P. 1975: Logic and conversation. In P. Cole & J. Morgan (eds.), *Syntax and Semantics 3: Speech Acts*, 41-58. New York: Academic Press. Reprinted in H.P. Grice 1989, 22-40.
Grice, H.P. 1981: Presupposition and conversational implicature. In P. Cole. (ed.), *Radical Pragmatics*, 183-198. New York: Academic Press.
Grice, H.P. 1989: *Studies in the Way of Words*. Cambridge, Mass.: Harvard University Press.
Kasher, A. 1991a: Pragmatics and the modularity of mind. In S. Davis (ed.), 1991. *Pragmatics: A Reader*, 567-582. Oxford University Press.
Kasher, A. 1991b: On the pragmatic modules: A lecture. *Journal of Pragmatics* 16, 381-397.
Larson, R. & Segal, G: 1995. *Knowledge of Meaning: An Introduction to Semantic Theory*. Cambridge, Mass.: MIT Press.
Leslie, A. 2000a: How to acquire a representational theory of mind. In D. Sperber (ed.), *Metarepresentations: a Multidisciplinary Perspective*, 197-223. Oxford: Oxford University Press.
Leslie, A. 2000 b: "Theory of mind" as a mechanism of selective attention. In M. Gazzaniga (ed.), *The New Cognitive Neurosciences*, 1235-1247. Cambridge, Mass.: MIT Press.

Levinson, S. 2000: *Presumptive Meanings: The Theory of Generalized Conversational Implicature*. Cambridge, Mass.: MIT Press.
Matsui, T. 2000: *Bridging and Relevance*. Amsterdam: John Benjamin.
Millikan, R. 1984. 1984: *Language, thought, and Other Biological Categories*. Cambridge, MA: MIT Press.
Neale, S. 1990: *Descriptions*. Mass.: MIT Press.
Recanati, F. 1993: *Direct Reference: From Language to Thought*. Oxford: Blackwell.
Recanati, F. 1995: The alleged priority of literal interpretation. *Cognitive Science*, 19, 207-232.
Recanati, F. 2001: What is said. *Synthese*, 128, 75-91.

Recanati, F. forthcoming: Unarticulated constituents. *Linguistics and Philosophy*
Scholl, B. & Leslie, A. 1999: Modularity, development and "theory of mind". *Mind and Language* 14, 131-153.
Sperber, D. 1994a: Understanding verbal understanding. In J. Khalfa (ed.), *What is Intelligence?*, 179-198. Cambridge: Cambridge University Press.
Sperber, D. 1994b: The modularity of thought and the epidemiology of representations. In L. Hirschfeld & S. Gelman (eds.), *Mapping the Mind: Domain Specificity in Cognition and Culture*, 39-67. Cambridge: Cambridge University Press.
Sperber, D. & Wilson, D. 1986/95: *Relevance: Communication and Cognition*. Oxford: Blackwells.
Sperber, D. & Wilson, D.1998: The mapping between the mental and the public lexicon. In P. Carruthers & J. Boucher (eds.), *Language and Thought: Interdisciplinary Themes*, 184-200. Cambridge: Cambridge University Press.
Stanley, J. 2000: Context and logical form. *Linguistics and Philosophy*, 23, 391-434.
Stanley, J. & Szabo, Z. G. 2000: On quantifier domain restriction. *Mind and Language*, 15, 219-61.
Taylor, K. 2001: Sex, breakfast, and descriptus interruptus. *Synthese*, 128, 45-61.
Wilson, D. & Sperber, D. 2000: Truthfulness and relevance. *UCL Working Papers in Linguistics*, 12, 215-254.