Explicature and semantics[*]

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Abstract

According to the relevance-theoretic account, identifying what is communicated explicitly by an utterance (its explicature) involves several pragmatic processes: disambiguation, saturation of indexical elements, the recovery of unarticulated constituents and *ad hoc* concept construction, both of the latter being free from any linguistic indication. This is at odds with a current philosophical position according to which contextual contributions to the proposition expressed are confined to the processes of disambiguation and saturation; this view necessitates positing a number of hidden (unarticulated) indexicals in the logical form of linguistic expressions. The arguments for the two positions are assessed.

1 The territory

A standard view of the semantics of natural language sentences or utterances is that a sentence has a particular logical structure and is assigned truth-conditional content on the basis of that structure. Such a semantics is assumed to be able to capture the logical properties of sentences, including necessary truth, contradiction and valid inference; our knowledge of these properties is taken to be part of our semantic competence as native speakers of the language. The following examples pose a problem for this view:

(1) a. If it's raining, we can't play tennis
b. It's raining
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c. We can't play tennis

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(2) a. If John stopped his car in an illegal position and Bill ran into John, then John is liable for damages.
b. Bill ran into John and John stopped his car in an illegal position.
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c. John is liable for damages.

The first example seems to be a valid argument, and the second seems to be plainly invalid.[1] However, the validity of (1) depends on requirements that do not seem to be encoded in the sentences used: that the time and place of the raining mentioned in (b) is the same as that of the envisaged tennis-playing mentioned in (c). If, in a telephone conversation between my mother in New Zealand and me in London, she utters (b), I will not draw the conclusion in (c), although I believe what she says and I believe the first conditional premise. Similarly, the invalidity of (2) is dependent on the assumption that there is a cause-consequence relation between the events described by the conjuncts of the 'and'-conjunctions, though few truth-conditionalists would want to ascribe that property (or the property of temporal sequence) to the semantics of 'and' (or to anything else in the sentence), there being good reasons to maintain a unitary truth-functional analysis of the connective.

What is clear here is that our validity judgements depend on more than the lexical content and syntactic structure of the sentences used, that is, on more than the meaning provided by the linguistic system alone; the further content is recovered not from linguistic decoding but by some other process able to take account of extralinguistic context. So the propositional forms in these arguments are hybrids, made up of linguistically encoded material and contextually supplied material. The proposition expressed by (1b) in a particular context might be as in (3a), and that expressed by (2b) might be as in (3b) (both being but rough indications, using the inadequate resources of natural language boosted by a few reasonably transparent makeshift indicators):

(3) a. It's raining in Christchurch, New Zealand at t_x.
b. [$Bill_i$ ran into $John_j$ at t_x]$_P$ & [as a result of P, $John_j$ stopped at t_{x+y} in an illegal position]

Examples of this sort have received a range of treatments in the existing semantics/ pragmatics literature, two of which will be discussed in this paper. The more

[1] The first example will be recognisable as an adaptation of one made famous by Perry (1986); the second is taken from Breheny (1999).

linguistically oriented explanation is that there are hidden indexicals in the logical form of the sentences employed, so in (1b) there is a phonetically/graphologically unrealised element marking the place for a location constituent. If this is extended to the second example, then, as well as each of the conjoined sentences having a variable indicating the requirement of a temporal specification, there must be a variable indicating a relation between the conjuncts. On some formal semantic accounts, these are linked in a stipulatory fashion to contextual indices, for instance, to a location index and a temporal index which are among the set of indices that comprise a formally conceived context. A more psychologically oriented semantics would accept that there is some pragmatic inferential process involved in finding the value of the hidden element in the context. But the crucial point of this sort of explanation is that the recovery of contextual material is dictated by the linguistic system in pretty much the same way as it is in the case of overt indexicals, such as those in (4), to which a contextual value has to be given before a complete proposition is recovered and before the sentence can be fully employed in truth-preserving inference:

(4) She put it there.

On the alternative, more pragmatically oriented, approach, there is no level of linguistic representation of the sentences used in examples (1) and (2) in which there are variables (or silent indexicals, or empty constituent slots) which indicate that contextual values must be assigned in order to determine the full truth-conditional content. The contextually supplied constituents are often termed unarticulated constituents, where 'unarticulated' is to be understood, not in the weak sense of a linguistic entity which is present but not phonologically realised, but rather in the strong sense that there is no linguistic entity here at all, these constituents being supplied on wholly pragmatic grounds. An adequate account of how these meaning constituents become part of the proposition expressed by the utterance, and so affect its truth conditions, is formulated entirely in terms of pragmatic mechanisms which, not only effect their recovery, but also motivate it. The cognitive pragmatic theory of Dan Sperber and Deirdre Wilson, developed within their wider relevance-theoretic framework, is geared towards doing this sort of work. That is, as well as accounting for the process of supplying contextual values to indexicals, a process known as 'saturation', it aims to account for the process of recovering unarticulated constituents, a process known as 'free' enrichment, where what the process is 'free' from is linguistic control; obviously, it is tightly constrained by the pragmatic principles involved.

The term ‘explicature’ arose within relevance theory, as a partner to the more familiar ‘implicature’. Although it is related to the Gricean notion of ‘what is said’, it also departs significantly from it, and while the Gricean notion is often thought of as a semantic construct, explicature plainly is not. It is a term belonging to a theory of communication and interpretation, and it is distinguished from most uses of the term ‘what is said’ in that it involves a considerable component of pragmatically derived meaning, in addition to linguistically encoded meaning. A key feature in the derivation of an explicature is that it may require ‘free’ enrichment, that is, the incorporation of conceptual material that is wholly pragmatically inferred, on the basis of considerations of rational communicative behaviour, as these are conceived of on the relevance-theoretic account of human cognitive functioning. A further unorthodox characteristic of an explicature, at least in recent manifestations, is that some of its conceptual constituents may be rather different from the concepts encoded by the lexical items in the corresponding position in the logical structure of the sentence that was uttered. The idea here is that the concepts encoded by the language system are but a small subset of the repertoire of concepts that the human mind can manipulate and that can be communicated. Lexically encoded meaning often serves as just a clue or pointer to the concept the speaker has in mind, but the relevance-based comprehension strategy is such that an addressee is usually able to figure out from the lexical concept and other contextual clues what the intended concept is. It should be evident, then, that on this picture there may often be a considerable gap between the logical form encoded by the linguistic expression used and the explicature recovered by the addressee, although the logical form provides an essential framework for the processes of pragmatic construction.

This is mainly an expository paper. I will present the semantic-pragmatic hybrid that is ‘explicature’, outline the motivation for singling it out as a natural class of phenomena, look briefly at some of the ways in which it departs from more semantically oriented notions of ‘what is said’ and consider some of the objections that the concept might prompt, or already has prompted, from semantic quarters. There is also a more argumentative side to the paper, concerned with making a case for two hypotheses. The first is that the pragmatic principle(s) which guide an addressee in his derivation of conversational implicatures (the quintessential pragmatic phenomenon) are equally responsible for those aspects of the proposition expressed by an utterance (usually an explicature) which are contributed by context. This applies to the recovery of unarticulated constituents and to the construction of *ad hoc* concepts, both of which are controversial as features of truth-conditional content. But it also applies to the process of determining which among several perceptually identical linguistic entities the speaker has employed (that is, disambiguation) and to the task of finding the referents of

indexical and other referring expressions, both of which are universally agreed to be essential in identifying the truth-conditional content. The second argumentative strain is concerned to establish that free enrichment remains a live option, despite recent arguments from some semanticists that if a contextual element enters into truth conditions (that is, if some pragmatic process affects truth conditions) that element must have been provided for by a variable or indexical in logical form.

In the next section, I'll outline the cognitive psychological approach of relevance theory, within which explicature is taken to be a natural class of interpretive entity. In section 3, I define the concept of explicature a little more carefully, and discuss its relationship with the proposition expressed by (or the propositional form of) the utterance. The various pragmatic tasks that may be involved in cases of explicature derivation are surveyed and exemplified in section 4, and it is here that the contentious issues mentioned above are aired: whether the same or different pragmatic mechanisms are responsible for explicature and implicature, and whether or not there is free enrichment. I sum up in the final brief section.

2 Relevance-theoretic pragmatics

2.1 Cognitive underpinnings

Relevance Theory is a cognitive theory resting on some general assumptions about the mind which are familiar from the work of Noam Chomsky and Jerry Fodor. The mind, or at least those aspects of it relevant to current concerns, processes information in the form of representations by performing certain sorts of computations on those representations. Its architecture is to some significant extent modular, in the sense that it comprises domain-specific subsystems which are largely autonomous from other mental systems. Peripheral perceptual systems are the best candidates for mental modules (Fodor 1983), but recent work in evolutionary psychology makes it look increasingly plausible that many of the more central conceptual systems of the mind are also modular (for discussion, see Sperber 1994b). The language input system (or parser) is almost certainly modular. It is, in effect, a perceptual system, which maps an acoustic phonetic input onto whatever linguistic entities can have that particular phonetic form. It is a fairly rigid system that ignores all extra-linguistic considerations, and quickly delivers material in a format that the system(s) responsible for utterance interpretation can use in arriving at a hypothesis about the intended meaning.

The cognitive account of utterance understanding makes a fundamental distinction between two types of processes: the decoding processes of the language system and the

pragmatic inferential processes. This processing distinction is closely allied to the way in which the semantics/pragmatics distinction is understood in the theory. 'Semantics' here is a matter of linguistically encoded meaning, entirely context-free and context-invariant; 'pragmatics' is a matter of the recovery of the speaker's meaning, a thoroughly context-sensitive affair. Conceived of in this way, the 'semantic' is simply one source of evidence (albeit a very rich one) for the pragmatic system to use in its bid to arrive at an interpretation of the utterance stimulus. This is not a representational distinction since there are no pragmatic *representations* but merely pragmatic *processes* in deriving meaning representations. However, the representation(s) output by the linguistic processor, which are schematic structured strings of concepts with both logical and causal properties, are sometimes called 'semantic' representation(s), or logical form(s).[2] These are not 'real' semantic in the sense (of David Lewis and other philosophers) that they make claims about an extralinguistic reality: rather, they are those formal, syntactic (generally subpropositional) representations which are in the appropriate format for integration with representations from other information sources. The result of these integration processes may be fully propositional representations that do represent possible states of affairs and so can be evaluated against an external reality for truth/falsity. A final caveat about these 'semantic' representations: they are not recovered as a whole and then worked on by the pragmatic inferential system; rather, the mechanisms here (the parser and the pragmatic system) are performing on-line, millisecond by millisecond, so that very often pragmatics is making a hypothesis about an intended word sense, or an indexical referent, or even an implicature, before the entire acoustic stimulus has been processed by the linguistic system.

An obvious question at this point is how the pragmatic system fits into the overall architecture of the mind. To move towards an answer to this, we need to take a step back from language and communication and consider another, apparently quite distinct, cognitive system, that known as 'theory of mind' or 'mind-reading'. This is the system responsible for the irresistible tendency we humans seem to have to interpret each other's behaviour in terms of the beliefs, desires and intentions that we take to underlie it (for discussion, see Sperber 1994a). Consider coming upon the following scene, for instance: a man is lowering himself, head and arms first, down into a hole in the ground while another man holds onto his legs. Very few observers will represent this scene to themselves as I have just described it and leave it at that; most of us will try to find some

[2] There is a confusingly large array of ways in which the semantics/pragmatics distinction has been drawn in different frameworks depending on their aims. For discussion of some of these, see Bach (1997), Carston (1998b) and Stanley (2000).

plausible beliefs, desires and/or intentions that we can attribute to these two men, some set of mental states which will explain their behaviour. For instance, we may attribute to both men a **belief** that there is something worth retrieving down in that hole, to the first man an **intention** to retrieve it, to the second man a **belief** that the first may fall into the hole and hurt himself if his legs aren't held, etc.

The system which attributes mental states like beliefs and intentions to others has many of the standard properties of an evolved cognitive module: it is domain-specific, fast, and automatic (we can't help but make these attributions), and it apparently follows a fixed, idiosyncratic and universal pattern of development and is subject to specific breakdown (see Baron-Cohen 1995, Scholl & Leslie 1999). The sort of representation it deals in is **meta**representational, that is, it represents the content of another representation, which is attributed to someone, and this can be iterated to several successive levels of embedding. For instance, I may attribute to you the **intention** to get Mary to **believe** that Bob **wants** to meet her, which is a third order metarepresentation. The special logical properties of such representations are well known from work on the semantics of propositional attitudes; correspondingly, the theory of mind system must have its own computational properties, distinct in crucial ways from those of first level (factual) representations. From an evolutionary point of view, the selective advantage that this capacity gives a creature is evident: it makes it possible to predict the behaviour of others and so plan one's own behaviour accordingly, whether the concern is self-protection, competition, exploitation or cooperation. Moreover, it enables a particular kind of communication, namely ostensive communication, which is of central social importance.

Continuing the scenario from above: suppose the second man, who is holding the legs of the first, swivels his eyes leftwards in our direction and starts to jerk his head quite violently from left to right. It is likely that we'll take him to be communicating something to us, that we'll take the head movement to be not some involuntary tic he developed upon seeing us, but rather a movement designed to make it evident to us that he wants our attention and has something to tell us. We might even hazard a guess at (infer) what the intended message is, something like 'I want you to help me' perhaps. Note that this is achieved **without any element of encoding** whatsoever; the same type of head movement would be interpreted in quite different ways in different situations. Ostensive behaviour of this sort involves a communicative intention, that is, a higher order informative intention to make manifest a lower order informative intention to make certain assumptions manifest. In other words, a speaker's meaning is a set of assumptions (with attitudes attached) which the addressee is overtly intended to recover. When the communication is verbal, accessing its linguistic meaning is a preliminary stage, a means to the end of discovering the speaker's meaning; it provides very helpful evidence,

though it usually falls far short of encoding speaker meaning, not just in the case of implicated assumptions but also in many aspects of the proposition explicitly expressed (explicature). So understanding utterances (and other ostensive acts) requires the forming of a higher order metarepresentation of a representation attributed to the speaker (the speaker's own representation being itself a metarepresentational intention).[3]

Sperber (2000) argues in favour of a comprehension module whose domain is utterances and other ostensive stimuli. This is a metarepresentational module and may be a submodule of the theory of mind (or 'metapsychological') system, to which it is clearly intimately related. The main argument for its modular status hinges on the fact that the comprehension process requires a particular pattern of inference which distinguishes it from the inferential processes involved in interpreting nonostensive behaviour. Someone observing the activities of the two men described above can impute to them certain intentions on the basis of an observed desirable outcome of their behaviour (e.g. the retrieval of a diamond ring). But in interpreting an instance of ostensive behaviour, the desirable effect (which is that the addressee grasp the communicator's meaning) cannot be achieved without the addressee's prior recognition of the communicator's intention to achieve that effect. That is, the standard pattern of inference, from behaviour to identification of desirable outcome and then to intention, is not available to the ostension understanding system. Relevance theory makes a specific proposal about the particular computational strategy employed by the comprehension module. I turn to that in the next section.

2.2 Relevance and utterance understanding

Relevance is defined as a property of inputs to cognitive processes (whether perceptual or higher-level conceptual); it is a positive function of cognitive effects and a negative function of the processing effort expended in deriving those effects. Cognitive effects (or contextual effects) include the strengthening of existing assumptions of the system, by providing further evidence for them, the elimination of assumptions that appear to be false, in the light of the new evidence, and the derivation of new assumptions through the interaction of the new information with existing assumptions. A basic principle of the framework is the "*Cognitive Principle of Relevance*" according to which the human cognitive system as a whole is oriented towards the maximisation of relevance. That is,

[3] Wilson (1999) provides an illuminating exposition of how psychological research on the theory of mind capacity and work within the broadly Gricean inferential pragmatic tradition interrelate, and how both of these bear on more general metarepresentational abilities.

the various subsystems, in effect, conspire together in a bid to achieve the greatest number of cognitive effects for the least processing effort overall. The perceptual input systems have evolved in such a way that they generally respond automatically to stimuli which are very likely to have cognitive effects, quickly converting their sensory impact into the sort of representational formats that are appropriate inputs to the conceptual inferential systems; these systems then integrate them, as efficiently as possible, with some accessible subset of existing representations to achieve as many cognitive effects as possible. For fuller exposition, see Sperber & Wilson (1986) and Sperber & Wilson (1995, 261-66).

What distinguishes ostensive behaviour (including verbal utterances) from nonostensive behaviour (and, all the more so, from events that do not involve volitional behaviour at all) is that it raises an expectation of a particular level of relevance in the relevance-seeking cognitive system of the addressee. A speaker (or more generally, an ostensive communicator) overtly requests an expenditure of mental effort from an addressee (an outlay of attentional and inferential resources) and that licenses an expectation of a worthwhile return of cognitive effects with no gratuitous expenditure of effort. This is captured by the "*Communicative Principle of Relevance*": every act of ostension communicates a presumption of its own optimal relevance; that is, a presumption that it will be at least relevant enough to warrant the addressee's attention and, moreover, as relevant as is compatible with the communicator's competence and goals. The specific procedure employed by the comprehension system, on the basis of the presumption of optimal relevance, is given in (5):

(5) Check interpretive hypotheses in order of their accessibility, that is, follow a path of least effort, until an interpretation which satisfies the expectation of relevance is found; then stop.[4]

The least effort strategy follows from the presumption of optimal relevance in that the speaker is expected to have found an utterance for the communication of her thoughts which minimises the hearer's effort (within the parameters set by the speaker's own

[4] There are more and less sophisticated versions of the strategy depending on the different sorts of expectation of relevance the addressee has, from a naive expectation of actual optimal relevance to an expectation that allows for variations in both the ability and the willingness of the speaker to be relevant. The naive expectation employed by young children develops progressively into the more knowing expectations, though adults may vary their expectations across speakers and situations. See Sperber (1994a) for detailed discussion.

abilities and goals/preferences); the justification for the addressee stopping processing as soon as an interpretation satisfies his expectation of relevance follows similarly, in that any other interpretation that might also achieve the requisite level of effects will be less accessible and so incur greater processing costs.

The operation of this procedure, peculiar to the processing of ostensive behaviour, provides a solution to the apparent problem, mentioned in the previous section, that the intended effect (the grasping of the communicator's meaning) is dependent on a prior recognition of the communicator's intention. Processing by the addressee's pragmatic system employing the strategy in (5) is automatically triggered by an ostensive stimulus, irrespective of the actual intentions of the producer of the stimulus, and this strategy provides a reliable, though by no means foolproof, means of inferring a speaker's meaning. As a patently non-demonstrative inference process, it sometimes fails and doesn't come up with the intended meaning. And when it is successful what is achieved is seldom a perfect replication in the hearer's mind of the very assumptions the speaker intended to communicate. An utterance, like any ostensive stimulus, usually licenses not one particular interpretation, but any one of a number of interpretations with very similar import; provided the addressee recovers one of these, comprehension is successful, that is, it is good enough.

As Stanley & Szabo (2000a, 224, note 7) put it (with some scepticism): 'Sperber & Wilson's (1986) theory describes a *general strategy* exploited by language users to discover which features of the context are relevant for the resolution of ambiguity and semantic incompleteness .... [they] attempt to provide a very bold solution to the foundational problem of context dependence, since they argue that *the same process* underlies phenomena as distinct as the resolution of ambiguity and contextual supplementation of semantically incomplete information' (my emphasis). In fact, this considerably understates the generality of the picture, since the very same strategy is employed in the derivation of implicatures as well, that is, those communicated assumptions that, as is generally agreed, lie right outside the truth-conditional content of the utterance. Some demonstration of the strategy at work will be given in section 4, where it will also be seen that the derivation of implicatures and of what Stanley & Szabo call 'contextual supplementation [of logical form]' (explicature derivation) may occur together in a process of what Sperber & Wilson (1998) call 'mutual parallel adjustment', a process which is only possible if the full range of pragmatic tasks falls under the same interpretive strategy or principle.

A further question of a cognitive architectural sort concerns the extent to which, within the class of ostensive stimuli, linguistic ones are special. Certainly, they are special in that there is a distinct and quite elaborate linguistic decoding system; that's not being

questioned here. Rather, the issue is whether they are further interpreted by a pragmatic system dedicated to them alone (a 'linguistic' pragmatic system) or whether they are just one of a range of types of ostensive stimuli all processed by one and the same comprehension module. Stanley (2000) favours the former view, according to which there are two quite distinct types of communicative acts: genuine linguistic speech acts, whose semantic and pragmatic properties fall within linguistic theory, and non-linguistic ostensive acts, such as tapping someone on the shoulder or catching someone's eye and making a gesture, whose interpretive properties fall within a general theory of human reasoning[5]. The relevance-theoretic view, on the other hand, picks out a natural class of environmental phenomena, namely, ostensive stimuli, and the same comprehension strategy is taken to click into action in response to these stimuli, whether linguistic or not. However, it would not be incompatible with this account to posit a submodule, within the inferential comprehension module, which has some additional special properties pertaining just to acts of *linguistic* ostension. The account would be much less amenable, though, to there being two wholly distinct and unrelated systems, each with its own interpretive principles, which appears to be Stanley's view.

There are a few considerations that support the idea of a single pragmatic system at work in the interpretation of all acts of ostensive communication, though these are far from definitive. One is the generally agreed point that intended contextual assumptions and implications (implicatures) can result from either linguistic or nonlinguistic ostension. Stanley might respond to this that the system dedicated to linguistic interpretation is confined to the derivation of the proposition expressed (and its illocutionary force), which is then submitted to the wider inferential system for implicature derivation. However, as just mentioned, it looks very much as if the pragmatic principle(s) responsible for fixing values of indexicals and other contextual elements of the proposition expressed are the same as those involved in the derivation of implicatures. Stanley & Szabo (2000a, 236) themselves allow this, when they refer in passing to the probable involvement of Gricean machinery in determining what is said. This makes the positing of two distinct pragmatic systems (which would be operating according to identical principles) seem at best otiose. Finally, there is the rather under-

[5] Stanley includes in this class of non-linguistic ostensive communicative acts some that happen to involve language. He places strong requirements on the class of genuine linguistic speech acts, which are the concern of linguistic theories; they must be grammatical, and must have determinate propositional content and illocutionary force. An example of a language-involving communicative act which is allegedly not properly linguistic is mentioned in section 4.3 (footnote 12), where subsentential utterances are briefly discussed.

explored fact that most verbal utterances are a complex of linguistic, paralinguistic, facial and vocal gestures, which appear to function as a single signal receiving a unified interpretation (see Clark 1996).

In the next section, I look more closely at the concept of explicature, before investigating in some detail the different sorts of pragmatic tasks involved in its derivation.

3 Explicit communication

There are two types of communicated assumptions on the relevance-theoretic account: explicatures and implicatures. An 'explicature' is a propositional form communicated by an utterance which is pragmatically constructed on the basis of the propositional schema or template (logical form) that the utterance encodes; its content is an amalgam of linguistically decoded material and pragmatically inferred material. An 'implicature' is any other propositional form communicated by an utterance; its content consists of wholly pragmatically inferred matter (see Sperber & Wilson 1986, 182). So the explicature/implicature distinction is a derivational distinction and, by definition, it arises only for verbal (or, more generally, code-based) ostensive communication.

Recalling the examples in the first section, an utterance of (6a), in an appropriate context, can express the proposition in (6b), which, if ostensively communicated, is an explicature; the same goes for the propositional form in (7b) expressed by an utterance of (7a):

(6) a. It's raining.
b. *It's raining in Christchurch, New Zealand, at time* t_x.

(7) a. Bill ran into John and John stopped his car in an illegal position.
b. *[Bill*$_i$ *ran into John*$_j$ *at* t_x *]*$_P$ *& [as a result of P, John*$_j$ *stopped at* t_{x+y} *in an illegal position*]

There are several points to note here. First, since the content of explicatures is derived from the two distinct processes of decoding and pragmatic inference, different token explicatures which have the same propositional content may vary with regard to the relative contributions made by each of these processes. That is, they may vary in degree of explicitness:

(8) a. Mary Jones put the book by Chomsky on the table in the downstairs sitting-room.
b. Mary put the book on the table.
c. She put it there.
d. On the table.

All of these could be used in different contexts to communicate explicitly one and the same propositional form. Clearly (8c) and (8d) leave a great deal more to pragmatic inference than does (8b), which in turn is less explicit than (8a). It follows from the relevance-driven pragmatics outlined in the previous section that the linguistically encoded element of an utterance should not generally be geared towards achieving as high a degree of explicitness as possible, but that the speaker, taking account of the addressee's immediately accessible assumptions and the inferences he can readily draw, should encode just what is necessary to ensure that the inference process arrives as effortlessly as possible at the intended meaning. A speaker who fails to heed this, or gets it wrong, may cause her hearer unnecessary processing effort (for instance, pointless decoding of concepts which are already activated or highly accessible to him), and runs the risk of not being understood, or at the least, of being found irritating and/or patronising, etc. So, in many contexts, an utterance of the highly indexical sentence in (8c), or of the subsentential expression in (8d), will be more appropriate than either of the more elaborated ones.[6]

Second, the explicature/implicature distinction applies only to *ostensively communicated* assumptions, that is, to those that the speaker has made evident she intends the hearer to pick up. An utterance will, of course, transmit much information that does not fall within the definition of ostensive communication, some falling under other types of intentions the speaker may have, some lying right outside any intentions she may have (see Wilson & Sperber 1993). This opens up the possibility of a difference between the proposition expressed by the speaker and her explicature(s): the proposition expressed may or may not be communicated; only when it is communicated is it an explicature of the utterance. This distinction is important in the context of certain non-

[6] Elsewhere I have discussed in detail the 'linguistic underdeterminacy' thesis, that is, the position that the linguistic form employed by a speaker inevitably underdetermines the proposition she explicitly expresses. I have tried to make a case for the view that this is not just a matter of processing convenience (saving of speaker or hearer effort) but is, in fact, an essential property of natural language sentences, which do not encode full propositions but merely schemas for the construction of (truth-evaluable) propositional forms (see Carston 1998a and forthcoming).

literal uses, such as irony, where the proposition expressed is not endorsed by the speaker, and so does not fall within her communicative intention. It also arises for non-declarative utterances, such as imperatives, as will shortly be demonstrated.

Third, on the basis of what has been said so far, it looks as if an utterance has a single explicature, the proposition it expresses when that is communicated (endorsed) by the speaker. But in fact Sperber & Wilson's idea is that utterances typically have several explicatures. The logical form may be embedded in a range of different sorts of higher-level schemas, including speech-act and propositional-attitude descriptions. For instance, Mary's reply to Bill's question in (9) might have the explicatures given in (10):

(9) a. Bill: Did your son visit you at the weekend?
b. Mary (happily): He did.

(10) a. Mary's son visited her at the weekend.
b. Mary says that her son visited her at the weekend.
c. Mary believes that her son visited her at the weekend.
d. Mary is happy that her son visited her at the weekend.

The hearer may actually represent only some subset of these (though the speaker has made manifest her intention to make the others manifest as well). In a situation in which, for instance, Bill knows that Mary has been worrying about a growing rift between her son and herself, he may represent just (10a) (the base-level explicature) and the higher-level explicature in (10d). These are the explicitly communicated assumptions most likely to give rise to cognitive effects (that is, to be relevant) in that context. In a different sort of example, a higher-level explicature describing the speaker's belief might be the major contributor to the relevance of the utterance; for instance, in a context in which this representation could overturn or modify the hearer's existing representation of the speaker's beliefs.

On the relevance-theoretic account, an utterance of a sentence in the imperative mood communicates an explicature which describes a certain state of affairs as desirable to some degree (to either speaker or hearer, an indeterminacy which has to be pragmatically resolved) and as achievable. For example, in an appropriate context, an utterance of (11a) could communicate the higher-level explicatures in (11b) and (11c):

(11) a. Buy some milk.
b. It is desirable to the speaker (and achievable) that the hearer buy some milk.
c. The speaker requests the hearer to buy some milk.

As on certain speech-act accounts, the idea here is that the proposition expressed is the same as that expressed by the corresponding declarative; here it would be 'the hearer buy(s) some milk'. This is clearly not an explicature of the imperative utterance, however; what is explicitly communicated by the utterance of (11a) is the higher-level representations. (See Wilson & Sperber (1988) for a fuller account of imperatives and other non-declaratives.)

The distinction between higher-level explicatures and the explicated propositional form of the utterance is interesting from another point of view too. Several classes of sentential adverbial have been analysed by theorists as not being part of the propositional form of the utterance:

(12) a. Frankly, I'm unimpressed.
b. Confidentially, she won't pass the exam.
c. Happily, Mary's son visited her this weekend.
d. Unfortunately, I missed the train.

'Frankly' and 'confidentially' are illocutionary adverbials, and 'happily' and 'unfortunately' are attitudinal adverbials. It seems that they do not contribute to the truth-conditional content of these utterances, yet they each encode a concept which must feature in some representation derived by the hearer. Where, then, do these elements make their contribution? There is a neat answer to this in the system Sperber & Wilson have developed: they contribute to a higher-level explicature. This is most easily seen in the case of the illocutionary adverbials, which slot straightforwardly into the role of modifier of a speech-act verb in the higher-level speech-act description:

(13) a. I tell you frankly that I'm unimpressed.
b. I inform you confidentially that she won't pass the exam.

While there is a range of interesting issues that could be pursued around this notion of higher-level explicature, I intend to focus in the rest of the paper on the first-level explicature, whose content is that of the proposition expressed by the utterance.[7]

Finally, although 'explicature' is a term specific to a particular pragmatic theory, Relevance Theory, the phenomenon it picks out, at least at the first level, bears strong

[7] For a more detailed analysis of the concept of 'explicature', see Carston (1998a) and (forthcoming, chapter 3), where certain issues raised by the original definition (Sperber & Wilson 1986, 182) are discussed, and a revision is suggested and motivated.

resemblances to that denoted by terms used in other frameworks, such as 'what is said' as used by Recanati (1989, 1993), 'impliciture' as used by Bach (1994) and the 'pragmatic view' of 'context-sensitive saying' defended by Travis (1985, 1997). They all subscribe to the notion of 'free' enrichment, as discussed above, and so endorse a level of communicated assumptions that are neither entirely controlled by linguistic semantics (logical form) nor are merely conversational implicatures; Recanati and Travis share with relevance theorists the view that this linguistic/pragmatic hybrid is what constitutes the truth-conditional content of the utterance.[8]

4 Pragmatic tasks in explicature derivation

4.1 Linguistic expression identification

One of the tasks a hearer carries out in understanding an utterance and which must, therefore, be accounted for by a pragmatic theory, is the identification of the linguistic expressions employed by the speaker. This is better known as disambiguation, though that term can be somewhat misleading. An utterance is ambiguous in the same way that any perceptual signal may be ambiguous until it is contextualised, but from the statement that the utterance must be disambiguated it should not be inferred that such linguistic entities as lexical items and syntactic structures are ambiguous. This would not be right: there are (at least) *two* lexical items which happen to have the phonological form / ring / mapping to two unrelated concepts: a circle and a certain quality of sound, and there are *two* sentences that happen to have the surface arrangement of forms 'visiting children can be tiring'.[9]

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[8] In Carston (1998a, chapter 3) and (forthcoming), I argue in detail against there being any role in an account of linguistic communication for a notion of 'what is said' additional to, and intermediate between, the decoded logical form of the utterance and the explicature (or Bach's 'impliciture' or Recanati's pragmatically enriched 'what is said'). This includes the original Gricean notion, which allows for just those essential contextual adjustments (standardly, disambiguation and reference fixing) which will ensure a minimally truth-evaluable proposition as what is said, and Bach's (1994) even more pared down conception, according to which what is said must correspond, constituent for constituent, with the linguistic expression used, so that what is said may be just a propositional radical, hence not truth-evaluable.

[9] In fact, it's not perfectly clear that 'linguistic expression identification' should be equated with 'disambiguation'. Ultimately, this depends on what sort of an entity a linguistic expression is, that is, whether it is (a) a complex of constitutive representations (phonological, syntactic, semantic), or (b) an

According to Perry (1998) and Stanley & Szabo (2000a), the role context plays in the identification of the linguistic expression used is pre-semantic (or grammatical). This description reflects the fact that ambiguity is a non-issue for a static semantic theory of the standard truth-conditional sort[10], a theory which assigns truth conditions to the antecedently distinguished sentences of the language and truth-conditional contributions to the antecedently distinguished lexical items, no matter what chance coincidences of form there might be. So the two sentences which would both be heard as 'Tom gave Pat a ring' are each assigned a distinct set of truth conditions along the following lines (abstracting away from various factors, including tense):

(14) a. An utterance of the sentence 'Tom gave Pat a ring$_X$' is true just in case Tom telephoned Pat.
b. An utterance of the sentence 'Tom gave Pat a ring$_Y$' is true just in case Tom gave to Pat a circle of such and such a sort.

Grice (1975) mentioned the necessity of disambiguation in order to *identify* 'what is said' in the case of an utterance of 'he is in the grip of a vice', but he did not seem to conceive of his pragmatic machinery (the conversational maxims) being involved in this process. Their role seems to have been confined to the derivation of conversational implicatures, the disambiguation process lying outside the issues that occupied him (primarily a concern to maintain as lean and logical a semantics as possible, by relegating the derivation of richer related meanings to the operation of conversational principles). He did not envisage any role for conversational maxims at all in determining or identifying 'what is said'; indeed, this was the point of the saying/implicating distinction,

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externalisable representational vehicle which represents a constituent of thought (a concept), or (c) an entirely internal logico-conceptual entity that may be represented by some conventional representational system (effectively the reverse of (b)), or some other possibility. For interesting discussion of this issue, see Burton-Roberts (1994).

[10] It is an issue for discourse-oriented, 'dynamic' approaches to semantics, in which the domain of truth-conditional semantics is not natural language sentences but discourse representation structures (DRSs) which, like relevance-theoretic propositional forms, are an amalgam of linguistically and pragmatically supplied information. So an ambiguous form like 'ring' has to be disambiguated before the DRS to which it contributes can be assigned a truth-conditional semantics. For useful discussion of discourse representation theory and semantics, see Spencer-Smith (1987), and for an account of disambiguation in this sort of framework, see Asher & Lascarides (1995).

since the statement made or the proposition expressed, the minimal truth-conditional content of the utterance, was to be distinguished from those aspects of utterance meaning that were a function of such considerations as its appropriateness, informativeness, relevance in a particular context (considerations that are irrelevant to its truth-evaluability). The move to a cognitive pragmatic theory, whose goal is to explain how utterances are understood, brings a change in outlook, since some or other part of that theory must provide an account of *how* an addressee figures out which of two perceptually identical linguistic expressions is intended. In the absence of any evidence to the contrary, the simplest assumption is that whatever principle(s) are responsible for working out the conversational implicatures are also responsible for working out which expression has been uttered. I return to this issue of the role of pragmatic principles in determining aspects of the proposition expressed in the next section.

In these cases of homophony (or homography), what is it that the language module delivers to the pragmatic system (the comprehension module)? Its output might consist of all the homophonous linguistic elements, so that the pragmatic task is simply one of choosing among them. Alternatively, the language system might have internal mechanisms of a blind/dumb sort that plump for one or other of the candidates on some basis or other. In the case of homophonous lexical items, the basis might be degree of activation (determined by a range of factors including frequency of occurrence); in the case of homophonous syntactic structures, it might be some measure of structural economy. If preliminary choices are made by the parser, these may be confirmed or rejected at the next phase when context and relevance-based inference enter the picture. If instead there is either exhaustive accessing of encoded meanings, or two or more meanings are equally accessible, they are processed in parallel until one of them yields enough effects to satisfy the expectation of relevance, so that the others are dropped.

Here's a sketch of a relevance-driven account of a simple case of disambiguation. Suppose the situation is one in which a family has come to a riverside and the mother, observing her children excited at the possibility of hiring a canoe to paddle down the river, realises that they used up all their cash on lunch. She says to her partner:

(15) If the kids want to go on the river I'll have to nip to the bank.

The focus here is, of course, the homophone /bank/. Suppose that both of the lexical items that have this form are activated, so the concepts encoded by both are delivered by the parser to the comprehension module, as alternative possibilities for the one position in the proposition expressed by the utterance. A choice will be made quite rapidly in favour of the financial institution sense, since accessible contextual assumptions include:

they are currently standing on a riverbank (so that deriving cognitive effects from 'nip to the riverbank' would be extremely difficult), the children want to hire a canoe, in order to hire a canoe they need cash, and cash can be got from a financial bank. However, it might be that the close proximity in the utterance of the form /river/ to the form /bank/ increases the accessibility of the 'riverbank' lexical item via some sort of spreading activation through a lexical network internal to the language processor. If so, then that may be the meaning initially accessed and checked for relevance; it would be rejected as not meeting the expected level of relevance (having few, if any, cognitive effects) and the next most accessible hypothesis (presumably that involving the financial bank meaning) would be tried and accepted.

4.2 Reference assignment and other saturation processes

The issue of indexical reference is considered central to semantic concerns in a way that the (accidental) formal coincidences discussed above are not. Both Perry (1998) and Stanley & Szabo (2000a) talk of the role of context here as 'semantic'. They mean by this that the extralinguistic contextual contribution of supplying a value to an indexical affects the truth conditions of the utterance: one and the same indexical sentence might be deemed true if uttered in one context and false if uttered in another. Taxonomies of indexical elements are often drawn up with different types distinguished by the sort of context (narrow/semantic or wide/pragmatic) they depend on and by whether or not their designation is 'automatic' or depends in part on the intention of the speaker (see, for example, Bach (1997) and Perry (1998)). I will focus here on those demonstratives and pronouns that would be generally agreed to require both a wide notion of context (that is, one that goes well beyond merely specifying the speaker, time and location of the utterance) and a consideration of speaker intention, since these most clearly require a fully pragmatic inferential process to determine their value.

Two simple examples are given in (16) and (17), together with one popular account (employing the conditional T-sentence schema) of how they are to be dealt with in a truth-conditional semantics for natural language sentences:

(16) a. She is lazy.
b. If x is referred to by 'she' in the course of an utterance of (16a) and x is female, then that utterance is true just in case lazy(x).

(17) a. That is green.

b. If x is referred to by 'that' in the course of an utterance of (17a), then that utterance is true just in case green(x).

The T-sentence (given in the consequent) is made conditional on the fixing of certain types of contextual parameters enumerated in the antecedent; these parameters are, of course, entirely abstracted from the specifics of particular contexts. Higginbotham (1988, 40) expresses the hope that this approach promotes semantic theory 'without leading into the morass of communicative context'. The information that may be brought to bear from general knowledge, or from immediate perception, in the interpretation of a particular utterance of a natural language sentence, has no bearing whatsoever on its semantics.

But what is it that the parser delivers up to the comprehension module in cases such as (16a) and (17a)? It is not, presumably, a statement such as (16b) or (17b), but a logical form (a template for building a propositional form) indicating that a value is to be contextually filled, a value which is minimally constrained by the encoded linguistic meaning of the demonstrative or pronoun (incorporating features such as singular/plural, male/female, proximate/distal, perhaps). What guides these processes of value assignment? The Gricean position again seems to be that this is achieved without any intervention from conversational maxims, whose role in interpretation is to make assessments of, and adjustments for, informativeness, truthfulness, relevance, etc. once what is said has been identified. This is a view that prevails among semanticists with a stake in isolating a minimally truth-evaluable proposition expressed by an utterance. Even the recent quite cognitively oriented truth-conditional approach of Segal (1994) and Larson & Segal (1995) makes the following divisions among performance systems: 'The cognitive systems will include at least (a) a parser (b) a system that identifies the referents of indexicals and assigns them to the relevant parts of the sentence (c) a pragmatics system. ...' (Segal, 1994, 112, footnote 3). Note the distinction between (b) and (c), which parallels Grice's distinction between the contextual identification of referents and intended senses of ambiguous forms, on the one hand, and the work of the conversational maxims on the other.

Some other philosophers, however, made the point early on that the maxims, or at least the Co-operative Principle, must be involved in these processes; for instance:

> ' ... in ordinary cases of ambiguity we rely on that principle [the Co-operative Principle] to determine which sense is intended; if I say "The bank is mossy" I can usually rely on the accepted purpose of the talk-exchange to disambiguate my remark ... The Co-operative Principle often helps to determine to what item a speaker is referring when he uses a proper name or a definite description, ... It is the Co-operative

> Principle which enables the speaker to convey that the Tom he is talking about is the Tom we have both left, and that by "the candle on the dresser" he means the one we can both see and not some other candle on a dresser in Timbuctoo ....'
>
> (Walker 1975, 156-157)

Similarly, Katz (1972, 449) discusses a case of reference assignment involving Grice's first maxim of Quantity and concludes: 'Since identification of the referent ... can depend on maxims ... and on the pattern of argument for implicatures, determining what is said depends on the principles for working out what is implicated.' While Stalnaker suggested in his early work that context alone can determine disambiguation, more recently he says 'the Gricean principles and maxims clearly play a role in resolving ambiguity and fixing contextual parameters as well as in generating conversational implicatures' (Stalnaker 1989, 9). This has been the prevailing assumption within relevance theory since its inception: '... hearers invariably ascribe sense and reference to utterances (within the limits allowed by the grammar) in such a way as to preserve their assumption that the conversational maxims have been observed' (Wilson & Sperber 1981, 157).

This sort of contextual supplying of a value which is overtly marked as required by the linguistic form used is known as a process of 'saturation' (see Recanati 1993). A popular view among those semanticists who take the logical form of a sentence (relativised to context) to be the object of (truth-conditional) semantic interpretation is that all and any pragmatic contribution to the proposition expressed by an utterance (as opposed to what the speaker meant) is a saturation process. In other words, they adhere to the following principle:[11]

> *Linguistic Direction Principle*: A pragmatically determined aspect of meaning is part of what is said if and only if its contextual determination is triggered by the grammar, that is, if the sentence itself sets up a slot to be contextually filled.

The overt indexical cases, discussed above, perceptibly set up a slot to be contextually filled, but it follows from this principle that there are a great many slots which are not marked by such audible or visible material, that is, they are cases of hidden indexicals/variables or implicit arguments. The following are plausible cases involving

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[11] This is one of several 'minimalist' principles that are employed by semanticists who want to minimise the role of pragmatics in determining the proposition expressed by an utterance. For discussion, see Carston 1988, Recanati 1993.

saturation of a linguistically present but imperceptible constituent, such that the contextually supplied value answers the bracketed question:

(18) a. Paracetamol is better. [than what?]
b. It's the same. [as what?]
c. He is too young. [for what?]
d. It's hot enough. [for what?]
e. I like Sally's shoes. [shoes in what relation to Sally?]

These are all, arguably, semantically incomplete (subpropositional) until the constituent is contextually supplied. In each case, there's a lexical item which, as a matter of its meaning requires completion: *better*, *same*, *too x*, *x enough*, genitive marker. However, even if all of these contributions to the proposition expressed (explicature) do involve hidden elements in logical form, there is a range of other cases for which this is quite implausible and a wholly pragmatic account in terms of free enrichment is preferable. At least, that is the claim of the next two sections.

4.3 'Free' enrichment

In many instances, it seems that the pragmatic contribution to the proposition expressed by an utterance goes well beyond ensuring minimal propositionality. Consider the following:

(19) a. It'll take time for your knee to heal.
b. Ralph drinks.
c. Emily has a temperature.
d. He's a person with a brain.
e. Something has happened.

Given reference fixing, these examples are semantically complete but, without further pragmatic adjustment, they are banal obvious truths (any process takes place over a span of time, all human beings take in liquid, have some body temperature or other and have a brain as part of their physical makeup, etc). In virtually no instance would a speaker of these sentences intend to express that uninformative, irrelevant proposition; rather, she would intend an enriched or elaborated proposition which is relevant, that is, which interacts fruitfully with the addressee's accessible contextual assumptions. The relevance-theoretic position is that it is these enriched propositions (developments of

logical form) that are communicated as explicatures, for instance: *it'll take quite a long time for your knee to heal*, *Ralph drinks alcohol (habitually)*, and that the uninformative minimal propositions play no role in the process of utterance understanding, which is geared to the recovery of the propositional forms (and attitudes) communicated by the utterance. As the obligatory output of linguistic processing, logical forms play an important part in directing the interpretation process; together with the presumption of relevance and accessible contextual assumptions, they provide all the evidence necessary to recover the speaker's meaning. There is no intermediate level of minimal propositionality or 'what is said' (the product of decoded content, disambiguation and indexical fixing).

This sort of linguistically unmandated (free) enrichment, arguably, applies to a much wider range of cases than these banal truisms. The following examples are taken variously from papers by Bach, Carston, Recanati, and Sperber & Wilson:

(20) a. Jack and Jill went up the hill [*together*].
b. Sue got a PhD and [*then*] became a lecturer.
c. Mary left Paul and [*as a consequence*] he became clinically depressed
d. She took out her gun, went into the garden and killed her father [*with the gun*, *in the garden*].
e. I'll give you £10 if [*and only if*] you mow the lawn.
f. John has [*exactly*] four children.
g. Louise has always been a great lecturer [*since she's been a lecturer*].
h. There were [*approximately*] 50 people in the queue.

Without the bracketed material, each of these is, arguably, fully propositional (truth-evaluable) and is not an obvious truth, but in a great many contexts it is the enriched propositional form that is communicated and is taken by addressees to be the content of what is asserted, that is, the basis upon which the speaker is judged to have spoken truly or not. Without these developments of the logical form (in addition to disambiguation and saturation), in most contexts the interpretation of the utterance would not satisfy the presumption of optimal relevance. The relevance-theoretic position is that these are cases of free enrichment, mandated entirely by pragmatic requirements rather than by any linguistic constituent present in the logical form.

Another set of data for which the free enrichment case has been made are certain subsentential utterances. In a series of papers, Rob Stainton has argued that we can make assertions with isolated words or phrases, that is, with words or phrases which are not embedded in a sentential structure. Of course, many apparently subsentential utterances

turn out to be cases of syntactic ellipsis, so that, although phonologically nonsentential, they are, in fact, syntactically fully sentential. The following are such cases:

(21) A: Who ate the cake?
B: Sue.

(22) A: Mary will come to the party.
B: Bill won't.

It seems clear enough that B's utterance in (21) is an ellipsed version of 'Sue ate the cake' and in (22) of 'Bill won't come to the party'. So, in these cases, arguably, the logical form of the utterance is fully sentential, with a bunch of empty syntactic categories in the phonologically unrealised positions, and recovery of the missing material is a grammatical matter.[12] However, Stainton presents a range of cases that do not seem to be elliptical:

(23) Michael's Dad. [uttered while indicating to the addressee a man who has just come into the room]

(24) Only 22,000 miles. Like new. [uttered by a used car salesman]

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[12] As Deirdre Wilson has pointed out in discussion, this is probably too strong, since there are cases of VP ellipsis which are pragmatically controlled. Consider the following exchange, in which the content of the VPs has to be recovered from extralinguistic context:

i. [B holds out a packet of cigarettes]
A: Should I?
or: I shouldn't.
B: Do.

Even when there is a linguistic antecedent, recovery of a constituent may require a fair measure of reconstruction, which may not be entirely a matter of the grammar. The obvious cases are pronoun alternations (you/me) and polarity switches (anything/something), but there are also more striking instances:

ii ($_S$ She didn't say yes) and ($_S$ she didn't say no), but I did [= ($_{VP}$ *say (yes or no)*]

This involves some reanalysis, including a de Morgan conversion from 'and' to 'or'. As Wilson says, this looks like a case of pragmatic reconstruction rather than a mechanical grammatical process; she suggests that in this and numerous other cases, pragmatic inference is used to yield a linguistic object as output, the grammatical constraint being simply 'supply a VP'.

(25) Great haircut. [uttered upon encountering a friend one hasn't seen for a while]

(26) Water. [uttered by a desperately thirsty man staggering toward a water-vendor]

These have the following characteristics: they are (or, at least, can be) discourse-initial utterances, which is not a possibility for elliptical cases, there may be a degree of indeterminacy about the propositional content of the assertion, again not a property of ellipses, and they are *bona fide* assertions, as evidenced by the possibility of telling a lie with them (consider this possibility, in particular, in the case of the car salesman in (24)). One might even be inclined to judge the following a valid argument; if so, one is building in the appropriate recovered constituent concerning the car in question:

(27) Only 22,000 miles.
[If] only 22,000 miles, [then] in good nick

In good nick.

The significance of this, again, is that it shows that grammatical reconstruction processes, disambiguation and supplying values to referring expressions are not sufficient to derive the proposition expressed in these cases; rather, a purely pragmatic process of recovering conceptual material is required. The minimal linguistic form chosen by the speaker provides all the evidence necessary for the addressee to infer the speaker's informative intention and causes him no gratuitous processing effort. Stainton (1994) gives a relevance-theoretic pragmatic account of the interpretation of an example like (23), according to which a speaker who utters 'Michael's Dad', is employing a noun phrase which occurs without any further linguistic structure (specifying slots to be contextually filled), and is thereby asserting the proposition *The man near the door is Michael's Dad*. Any more elaborate linguistic representation, with empty category slots, would in fact require more effort from the addressee, and would yield no more cognitive effects, than the phrasal utterance.[13]

[13] Stanley (2000) disputes the position that there are nonsentential assertions; he argues that many cases, such as (23), are really elliptical and so, underlyingly, have a full sentential structure, and others, like (26), are not genuine linguistic speech acts at all, but fall in with taps on the shoulder, winks and other bodily gestures of a communicative sort, all of which are to be studied within a non-linguistic

In the next section, I return to the issue of the free enrichment of fully sentential examples, in the context of a discussion of a current view that there is no such thing, that, in fact, all truth-conditional elements supplied by context are linguistically indicated by indexical elements in the logical form of the utterance, that is, they are all cases of pragmatic saturation.

4.4 Free enrichment or hidden structure plus saturation?

Stanley (2000) makes the most sustained case to date against free enrichment and in favour of the position that 'all truth-conditional effects of extra-linguistic context can be traced to logical form'. Whenever a semantic value is contextually fixed, it is marked out in the logical form by an indexical (in the broad sense of 'indexical'), that is, by a pure indexical, or a demonstrative pronoun, or a variable (a covert indexical); the structure is there in all instances, waiting to be filled. He targets, in particular, cases of alleged nonsentential utterances, such as those just discussed, and cases of alleged unarticulated constituents. I'll concentrate on the latter here.

The procedure he follows in his most developed argument against the unarticulated constituent cases is as follows: (a) he takes a simple case which has been argued to involve the pragmatic addition of a constituent not marked out in logical form by any hidden element; (b) he embeds it in a larger structure which contains an explicit quantifier and in which the constituent in question can be understood as being bound by that quantifier; (c) he then shows that an account on which that constituent is wholly absent from the logical form is unable to predict this bound-variable interpretation, while an account on which a variable occurs in the appropriate position in logical form predicts both that interpretation (in which it is bound by the quantifier) as well as the deictic interpretation (in which the variable is free). Here's the line of argument applied to Perry's example, which is repeated in (28). First the simple sentence is embedded in a (universally) quantified sentence as in (29):

(28) It's raining.
(29) Every time John lights a cigarette, it rains.

There are two (at least) interpretations for (29):

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theory of general human reasoning. Stainton (forthcoming) takes issue with Stanley and defends the existence of non-sentential assertion.

(30) For every time t at which John lights a cigarette, it rains at t at the location l in which John lights a cigarette at t.
(31) For every time t at which John lights a cigarette, it rains at t at some location l which is salient in the context of utterance.

While the unarticulated constituent analysis can account for (31), in which a single constant location constituent is recovered from context, it cannot account for the interpretation in (30) (which, incidentally, is the preferred interpretation here), because the truth conditions it gives for the sentence in (28), assuming a temporal variable, are as follows:

(32) An utterance of 'it is raining (t)' is true in a context c iff it is raining at t and at l, where l is the contextually salient location in c.

An account which posits a location variable (in addition to an assumed temporal variable) in the logical form can account for both readings; on reading (30), the variable l is bound by the quantifier; on reading (31), the variable is free and takes as its value the most contextually salient location. Therefore, the unarticulated constituent (free enrichment) analysis is inadequate and there must be a location variable in the logical form of (29) and, to be consistent, also in the logical form of the simple (28).

This line of argument is repeated for sentences containing degree adjectives like 'small', 'fast', and 'old', whose truth-conditional effect involves an implicit comparison class, as in (33), for sentences containing quantifiers whose truth conditions depend on an implicit domain restriction, as in (34), and for sentences containing relational expressions, such as 'home', 'enemy', 'local', whose truth-conditional effect depends on what they are related to ('home of x', 'local to y', etc). In each of the following, (c) and (d) are the two readings of the quantified sentence (b), in which the simple case (a) is embedded:

(33) a. Freddy is small.
b. Most species have members that are small.
c. Most species S have members that are small for S. [bound variable reading]
d. Most species S have members whose size is below s, where s is the standard made salient by the utterance context. [free variable reading]

(34) a. Every bottle is green.

b. In most rooms in John's house, he keeps every bottle on the top shelf.
c. In most rooms r in John's house, he keeps every bottle in r on the top shelf. [bound variable reading, which is the natural interpretation]
d. In most rooms in John's house, he keeps every bottle in the contextually salient domain on the top shelf. [free variable reading, which is absurd]

(35) a. Sue visited a local bar.
b. Everyone visited a local bar.
c. Everyone x visited a bar local to x. [bound variable reading]
d. Everyone visited a bar local to some contextually salient entity. [free variable reading]

The crucial final step of the argument in each case is to point out that the free enrichment account, on which the constituent in question is not present in any covert form in any linguistic representation, can account only for the free variable reading in each instance, that is, the interpretation on which the logical form is supplemented by a representation of a contextually salient entity.

Let's consider how convincing this step is. Focussing again on the example in (29), although a variable is required in the operator-bound interpretation, given in (30), there is no need for a variable on the other reading, given in (31), nor for the interpretation of the simple unquantified sentence in (28), so we could say that while it is present in the one sort of case, it is absent from the others. This might seem to amount to an ambiguity account, whereby, for instance, the linguistic form 'rains' encodes both 'RAINS' *tout court* and 'RAINS AT L', which would certainly be an unattractive prospect. But it is not the only way of understanding the proposal: the variable could come into being pragmatically in the case where the intended interpretation is the bound variable one. Stanley, however, claims that this is not possible:

> 'It is easy to see how an object or a property could be provided by pragmatic mechanisms; it need only be made salient in the context either by the speaker's intentions, or contextual clues, depending upon one's account of salience. However, denotations of bound variables are odd, theoretically complex entities. It is difficult, if not impossible, to see how, on any account of salience, such an entity could be salient in a context. Certainly, neither it, nor instances of it, could be perceptually present in the context. It is equally difficult to see how speaker intention could determine reference to such an entity.

> An entity such as a denotation of a bound variable is a theoretical posit, part of the machinery of a particularly complex semantic theory. It is not something about which we have beliefs or intentions. They are therefore not supplied by pragmatic mechanisms ...'
>
> (Stanley 2000, 414)

The truth of these claims is essential to the case against the free enrichment possibility, but it rests on certain assumptions about the nature of contexts and pragmatic processes, with which one could take issue. Stanley takes a very extensionalist view of context, as consisting of perceptible objects and properties, while the operative notion of context within an on-line cognitive account of utterance understanding is of a set of mentally represented assumptions, some of which are representations of immediately perceptible environmental features, but most of which are either retrieved from memory or constructed on the basis of stored assumption schemas (see Sperber & Wilson 1986, chapter 3). On this sort of approach, these mental representations provide the material required by both linguistically indicated and pragmatically motivated contextual additions to the logical form. It is an open question at present just what these conceptual ('language of thought') representations consist of, but it should not be ruled out *a priori* that there are assumptions (and assumptions schemas) whose mental representation involves variables bound by quantifiers, and that these can be accessed by addressees in the process of interpreting utterances, in particular utterances containing explicit quantifiers.

Much of our general, as opposed to particular, knowledge might well be realised as representations which quantify over instances. A plausible case in the current context is our knowledge of the way in which times and places pair up when a certain type of event (such as 'raining') occurs: for each time at which it rains there is a place at which it rains; for each place at which it rains there is a time at which it rains. These could provide the basis for an inference from an appropriate temporal binding to a locational binding, as in the case of (29), or vice versa, as in an interpretation of 'Every*where* John lights a cigarette, it rains'. While the **denotation** of a bound variable may never be a salient entity, as Stanley claims, a (bound) variable itself may be highly accessible if it occurs as an element in a highly accessible assumption. In fact, a quantifier-binding interpretation of an utterance may be recoverable in the absence, not only of a linguistically given indexical or variable, but also of any linguistically encoded quantifier which might prompt the recovery of a variable. Consider the following example:

(36) *Context*: Several crates of bottles are delivered to a large house, each designated for a different room in the house. It is the maid's job to unload the bottles and stack them in the right rooms. As she sets about her task, her employer says to her:
'On the top shelf, please. I don't want the children getting at them.'

The first utterance here is subsentential (a bare prepositional phrase); it contains no quantifier and no indexical, yet the proposition the employer expresses with it in this context involves quantifier-variable binding:

(37) For each room r (for each bottle b designated for r (put b on the top shelf in r)))

If this is right, the entire binding structure is recovered by a process of free pragmatic enrichment.

The existence of a bound variable interpretation for an utterance is not, therefore, a sufficient condition for the presence of a variable in the logical form of the linguistic expression uttered. Nor is it a necessary condition, as is shown by the case of the genitive, which is usually taken to be a paradigm case involving a variable requiring contextual saturation (see, for instance, Recanati 1989). The standard analysis of 'Sally's shoes' is 'the shoes that are in some relation x to Sally' (where this relation could be contextually instantiated as shoes 'bought by Sally, 'worn by Sally', 'chosen by Sally', 'made by Sally', 'painted by Sally', etc). The procedure of embedding a possessive noun phrase in the scope of a quantifier does not result in a bound variable interpretation:

(38) At all the school dances, the boys admired Sally's shoes.

There is no reading on which the interpretation of the phrase 'Sally's shoes' varies with the values introduced by the quantifier expression 'all the school dances'.

These rather programmatic remarks have been primarily directed at example (28), the place constituent case. As regards the others that Stanley considers, it may be that some of them do have a covert indexical or variable in logical form. The strongest support for a covert indexical account would come from syntactic evidence showing an alleged covert indexical behaving syntactically like an overt indexical. This sort of evidence exists for the relational terms (e.g. 'local', 'friend', 'enemy', 'home'), which show the same 'weak crossover' properties as overt indexical elements such as pronouns (see Stanley 2000, 423). Another kind of argument sometimes appealed to is that of 'conceptual necessity'. For instance, in these relational examples, it does seem that the

concept encoded by the particular lexical item requires, as a matter of conceptual necessity, that it be related to another entity: something does not have the property of being local unless it is in the appropriate relation *to some other entity*, a person who is not a friend *of someone* is simply not a friend, etc. In fact, however, it is not obvious that, from this observation, it follows that there must be a covert element signalling this entity in some level of linguistic representation; it may be pragmatics alone that answers to conceptual necessity, while linguistic representation is highly schematic and underdetermining. In any case, there are still many kinds of example for which an unarticulated constituent (free enrichment) account is at least a serious possibility, and some for which a hidden variable account doesn't seem possible.

Consider the case of quantifier domain restriction, where, for instance, an utterance of the sentence in (39a) may be understood as expressing the proposition in (39c). Stanley & Szabo (2000a) make the case for a domain variable being present in the logical form of (39a), roughly as shown in (39b); this mandates the contextual recovery of the relevant restriction on the class of bottles.

(39) a. Every bottle is green.
b. Every [bottle, x] is green.
c. Every bottle in this crate is green.

Bach (2000) launches a battery of arguments against this 'semantic' approach and argues instead for a 'free enrichment' pragmatic account. First, he points out the widespread redundancy and unnecessary syntactic complexity that follows from the assumption of a hidden indexical in quantifier phrases. Many instances of quantifiers in subject position, such as those in (40a) and (40b), seem to be naturally understood without any domain restriction, and, more compellingly, for predicative uses of indefinite descriptions, such as those in (40c) and (40d), recovery of the proposition expressed *never* requires a domain restriction:

(40) a. All men are mortal.
b. Hardly any food is blue.
c. That is a bottle.
d. Pat is a woman.

Second, according to the hidden indexical approach, linguistic mandating of a contextual domain restriction occurs no matter how detailed the overtly given descriptive encoding

of the domain may be. So even an utterance of (41c) calls for an obligatory contextual contribution to specify the relevant domain further:

(41) a. Most of the [retired people, x] were Republicans.
b. Most of the [retired people in Arkansas, x] were Republicans.
c. Most of the [retired people in Arkansas who voted for Dole in 1996, x] were Republicans.

I note in this regard that for the other kinds of cases Stanley discusses, there is *either* an overt (phonologically realised) element *or* a hidden element; so, for instance, while there is a location variable in the sentence in (42a), there isn't one in the sentences in (42b)-(42c):

(42) a. It's raining (l).
b. It's raining there.
c. It's raining in London.

The problem with the assumption of a quantifier domain variable is that the only lexical item it can plausibly originate from is the determiner itself ('every', 'most of the', 'a', etc), but these elements must be complemented syntactically and there is no limit on the complexity of their complements. Consequently, there is no cutoff point at which the alleged variable is replaced by overt linguistic material. In the face of this, a reasonable conclusion is that there is no linguistically given domain variable in any instance, the intended domain being determined by pragmatic considerations interacting with the overtly given descriptive material.

Bach also addresses Stanley's central argument, according to which embedding in the scope of a quantifier phrase results in a reading on which the domain variable is bound by the higher quantifier, as in the examples in (43):

(43) a. In most rooms in John's house, he keeps every bottle on the top shelf.
b. In most rooms in John's house, the personality of the designer is evident.
c. In most houses that John rents out, every car passing can be heard.

He claims that the natural understanding in such cases is not, in fact, a genuine 'reading of the sentence' (that is, not 'what is said'), but is rather a proposition that the sentence can be used to convey (an 'impliciture' in his terms, an 'explicature' in mine). He develops an analysis, according to which there is no quantifier domain variable in logical

form and such contextually recovered domain restrictions as those shown in italics in (44) are entirely pragmatically motivated:

(44) a. In most rooms in John's house, he keeps every bottle [*in that room*] on the top shelf.
b. In most rooms in John's house, the personality of the designer [*of that room*] is evident.
c. In most houses that John rents out, every car passing [*outside that house*] may be heard.

For the full details of his pragmatic account, see Bach (2000, 277-282).

Quite generally, it looks as if we're in for a long haul, since it seems that decisions on this hidden variable issue can only be reached on a case by case basis.[14] In this respect, recall the set of examples in (20) in the previous section, a few of which are repeated here in (45):

(45) a. Jack and Jill went up the hill [*together*].
b. Mary left Paul and [*as a consequence*] he became clinically depressed
c. She took out the gun, she went into the garden and she killed her father [*with the gun*] [*in the garden*].

First, it should be noted that an important background assumption here is that the pragmatically recovered italicised elements are taken to contribute to the proposition expressed by the utterance (the 'explicature') rather than as giving rise to an implicature. An implicature account would entail denying the effect of the bracketed elements on the truth-conditional content of the utterance which seems indefensible in these cases (recall the role of the causal relation in the invalid argument in (2)). Returning now to the issue of the source of these constituents, it is extremely difficult to see how one might argue for a hidden variable (or implicit argument) prompting their contextual recovery, or why

[14] The degree adjectives might seem like another promising case for a hidden variable in logical form; the variable, indicating the requirement of a comparison class, could feature in the lexical entries for the particular adjectives ('small', 'old', 'rich', 'fast', etc). In fact, Heim & Kratzer (1998), employing a type-driven semantic framework, give an unarticulated constituent account of the implicit comparison class of these adjectives, but they do not address the issue of the bound variable readings, which lies outside the concerns of their textbook. For further discussion of the semantics of degree adjectives, see Breheny (1999), whose own account involves pragmatic *ad hoc* concept construction, as discussed in section 4.5 of this paper.

one would want to. In (45a), unlike the relational cases (e.g. 'local', 'distant', 'lover', etc), there does not seem to be any lexical item carrying a variable for which 'together' could be the contextual value; rather, it arises from relevance-driven inference based on general knowledge about groups of people climbing hills, and is, no doubt, much encouraged by the NP-coordination (as opposed to S-coordination). Nor does this constituent appear to be able to enter into a binding relation with a quantifier; there are only two values it could take, 'together' and 'separately', and they do not seem to vary with different hill-climbings even when those hill-climbings are bound by a quantifier, for example, 'On all the Ramblers' excursions, Jack and Jill went up a hill'. The same points apply to the causal, instrumental and locative constituents in (45b) and (45c). Furthermore, the recovered constituents in (45c) are generally entirely optional: being told that someone has killed her father *tout court* is quite relevant enough in many contexts.[15] (In the next section, on *ad hoc* concept construction, a different account of the instrumental case will be considered, one which does not involve a distinct constituent at all, whether by variable instantiation or free enrichment.)

Leaving aside now the variable-binding argument, I shall finish this section with a more general argument against the idea of hidden constituents, taking some observations from Wilson & Sperber (this volume) as a starting point. They consider the following exchange between Alan and his neighbour Jill who has just called by:

(46) Alan: Do you want to join us for supper?
Jill: No thanks. I've eaten.

The sentence 'I've eaten' uttered by Jill is understood by Alan as expressing a proposition which includes an object of eating and a temporal specification, both of which are pragmatically inferred. The result is represented roughly in (47):

(47) Jill has eaten supper this evening.

On a hidden indexical view, the logical form of the sentence she uttered would contain two variables, one for the object and one for the temporal span:

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[15] Using the formal model of utterance interpretation developed by Kempson, Meyer-Viol & Gabbay (2000), Marten (1999) gives an account of VP interpretation, according to which verbal subcategorization is intrinsically underspecified and optional VP constituents (adjuncts), such as the locational and instrumental cases just discussed, are pragmatically inferred on-line during the process of syntactic structure-building.

(48) I have eaten (x) at (t)

Note that quite general and routine processes of reasoning will also supply these constituents: if someone has eaten she has eaten something; if someone has eaten (something) she has eaten at some time. Be that as it may, Wilson & Sperber go on to point out that in other situations the proposition expressed by a speaker who utters 'I've eaten', or its negation, might involve a specification of the place of eating, the manner of eating, and perhaps others. Their examples are:

(49) I've often been to their parties, but I've never eaten anything [*there*].
(50) I must wash my hands: I've eaten [*using my hands (rather than, say, being spoon-fed)*]

They comment on this:

> '.... more and more hidden constituents could be postulated, so that every sentence would come with a host of hidden constituents, ready for all kinds of ordinary or extraordinary pragmatic circumstances. .... We see this as a *reductio* argument that goes all the way to challenging what we accepted earlier for the sake of argument: that the use of the perfect carries with it a hidden constituent referring to a given time span. There is no need to postulate such a hidden constituent: the same [entirely pragmatic] process that explains how "eating" is narrowed down to "eating supper" also explains how the time span indicated by the perfect is narrowed down to the evening of utterance.'
>
> (Wilson & Sperber, 2000, this volume)

They go on to describe the postulation of hidden constituents as an *ad hoc* process, designed to limit as much as possible the gap between sentence meaning and proposition explicitly expressed, and argue that, although it is at odds with certain theoretical positions on semantics, there is strong evidence that there is considerable slack, and that given the relevance-theoretic view of pragmatic processing this is entirely to be expected.

I think this *reductio* argument can be carried a step further. If we assume for the moment that logical forms do come with numerous hidden indexicals, it seems that many of these do not receive any contextual value on particular occasions of use. For instance, the logical form of the sentence 'I've eaten' might contain four hidden constituents or variables:

(51) I've eaten [x] [in manner y] [at location l] [within time span t]

But in the exchange between Alan and Jill above, neither the manner nor the location are of any relevance at all, and would not receive any specific contextual value despite the fact that they are (allegedly) there in the logical form calling for contextual specification. Of course, the hidden indexical theorist might opt for a nonspecific default value for these indexicals:

(52) I've eaten supper in some manner at some location this evening.

But this doesn't seem to be the propositional content Alan recovers from Jill's utterance; if a sentence which actually encoded these 'some' elements, and so corresponded more directly with the alleged default-valued proposition, were in fact uttered, it would not have the same meaning as Jill's utterance of 'I've eaten'. Second, and more important, Stanley's idea is that the hidden elements are comparable to pronouns, which may be either free (and so given a contextual value) or bound by some operator in the sentence uttered. However, when a pronoun is free it MUST be given a contextual value if the utterance is to be understood and a fully propositional content recovered. Someone who can, for whatever reason, only find a contextual value for 'she' when interpreting an utterance of (53), and so fills the other indexical slots with nonspecific default values, won't have grasped the proposition expressed:

(53) She put it there.
(54) Lisa_i put something somewhere.

Another way out might be to propose that the linguistic form 'I have eaten' (and innumerable others) has a variety of logical forms, each with an array of variables, differing in number and type (including one with none), marking possible contextual completions. In the case of a sentence that has four possible variables for different constituents, this results in sixteen logical forms to cover the range of cases.[16]

[16] There seems to be an obvious application of some modified version of Occam's Razor here. Note that a cognitively realistic pragmatics does not necessarily favour wholesale use of the Gricean version of MOR, which seems to amount to: for any element of meaning, if you can show how it *could* be derived pragmatically, then assume that it *is* derived pragmatically, rather than posit an encoded meaning. Nevertheless, virtually any economy criterion, however hedged, is, I think, going to weigh against assuming sixteen logical forms, hence sixteen distinct sentences, each with the surface form 'I've

Whichever way you look at it, the covert indexical approach seems to require an unwelcome proliferation of entities, whether of logical forms or default values for variables. One of the nice features of the free enrichment account is that it is not straitjacketed in this way; by definition, only the relevant constituents are recovered.[17]

4.5 *Ad hoc* concept construction

The examples in the previous two sections can be viewed as cases of conceptual expansion, that is, of the pragmatic addition of conceptual material; for example, 'it's raining *in Christchurch*'. 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 lexical item is different from, and replaces, the concept it encodes; it is narrower, looser or some combination of the two, so that its denotation merely overlaps with the denotation of the lexical concept from which it was derived. Here's an attested example:

(55) Kato (of O.J. Simpson, at his trial):
He was upset but he wasn't upset.
(= He was [upset*] but he wasn't [upset**])

As far as its linguistically supplied information goes, this is a contradiction, a fact that presumably must be captured somewhere within a semantic theory for natural language. 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 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 murderous state of mind) that the first one does not, implications whose applicability to Simpson, Kato wants to deny. The proposition

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eaten'.

[17] For a detailed discussion of the unarticulated constituents issue and a compelling defence of the pragmatic account, se Recanati (forthcoming b).

explicitly expressed here is true just in case O.J. Simpson had one sort of property at the time in question, but lacked another, related but stronger, property.

There are a vast number of 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 'tired', 'anxious', 'frightened', 'depressed', 'well', 'happy', 'satisfied', 'sweet', etc. Consider the following exchange:

(56) A: Do you want to go to the party?
B: I'm tired.

Many of us are tired to some degree or other most of the time; what B communicates by the predicate 'tired' in this context is something much more specific, something roughly paraphraseable as 'tired to an extent that makes going to the party undesirable to B'. Just how narrowed down this *ad hoc* concept of tiredness is will depend on other contextually available information, perhaps concerning B's general energy levels, her liking for parties, etc. The prospects for finding another lexical item or phrase which fully encodes the concept of tiredness communicated here, and still others that encode the innumerable other concepts of tiredness that may be communicated by the use of this word in other contexts, look dim. Instead, the lexicalised general concept gives access to an indefinite number of more specific concepts, recoverable in particular contexts by relevance-driven pragmatic inference.

In their discussion of this example, Sperber & Wilson (1998) make an interesting proposal about how the explicature of such an example is derived: by a process of parallel mutual adjustment with the implicature(s) of the utterance. According to the relevance-theoretic comprehension strategy, the addressee takes the conceptual schema (logical form) delivered by linguistic decoding and, following a path of least effort, he enriches it at the explicit level and derives other assumptions at the implicit level, until the resulting interpretation meets his expectation of relevance. In the exchange in (56), A's question has made it plain what he is expecting by way of a relevant response from B (a 'yes' or 'no' answer), which is not given directly by B's utterance but is implicated by it. However, for the inferential process which results in this (negative) implicature to be warranted (that is, to be sound), the premises, which crucially include the explicature, must involve a particular concept [tired*], which is an enrichment of the concept encoded by the lexical item 'tired'. In short, the inference looks as follows:

(57) B is [tired*]
If B is [tired*] she doesn't want to go to the party

B doesn't want to go to the party

This is (part of) the end-product of the interpretation process; as set out here, it masks the significant point that, as an on-line process carried out over time, the pragmatic enrichment of the explicature may have occurred subsequent to the accessing of the implicated conclusion, though final acceptance of the implicature depends on the inferential warrant provided by the enriched explicature. As Sperber & Wilson (1998, 194) put it: 'The process is one of parallel adjustment: expectations of relevance warrant the derivation of specific implicatures, for which the explicit content must be adequately enriched'. This process would apply equally to example (55), though it would take a bit more scene-setting: the intended implicature, evident on the basis of earlier exchanges in the trial, is that Simpson was not in a murdering frame of mind on the night in question; warranting that would motivate appropriate enrichments of the concept encoded by 'upset'.[18]

The examples considered so far all involve a narrowing or strengthening of the encoded concept, but there are others that seem to require some degree of widening or loosening (as well as narrowing):

(58) a. Ugh, this custard is *raw*.
(Uttered by someone who has seen the custard being stirred over a flame.)
b. You get *continuous* classics on Classic FM. (Uttered by radio announcer.)
c. Young Billy is a *soldier*.
d. Jane is a *bulldozer*.
e. The *wilting violet* has finally left. (Referring to a woman who has just left the room.)

[18] This process of parallel adjustment of explicature and implicature should not be thought of as only applying to cases of *ad hoc* concept construction. Wilson & Sperber (forthcoming) provide several detailed derivations of interpretations involving this process, including some cases that are better construed as involving pragmatic recovery of unarticulated constituents, such as the example of 'I've eaten', discussed in section 4.4 above.

Consider the use of 'continuous' in (58b). In fact, the radio station concerned runs long sequences of advertisements between its sets of classical musical excerpts, and it punctuates each set with the disc jockey giving details about the musicians and the recording, as well as his own opinions about the music. However, the utterance is true on a certain loosening of the concept CONTINUOUS; Classic FM is the one radio station on which the music played is confined to classical (again, given an appropriately pragmatically adjusted concept of 'classical'), so that a (very rough) paraphrase of the proposition expressed is:

(59) [Musical] classics are played in all the music-playing slots on Classic FM.

In each of these examples, a logical or defining property of the lexical concept is dropped: UNCOOKED in the case of 'raw', UNINTERRUPTED in the case of 'continuous', MEMBER OF THE MILITARY in the case of 'soldier', MACHINERY in the case of 'bulldozer', PLANT in the case of 'wilting violet'. For instance, the proposition explicitly communicated by (58a) is true just in case the custard in question is [raw*], where [raw*] entails an unacceptable degree of undercookedness but does not entail uncookedness. More detailed discussion of the pragmatic process of concept construction is given in Carston 1996, Sperber & Wilson 1998, Breheny 1999, and Wilson & Sperber 2000.

The idea that explicature derivation may involve *ad hoc* concept construction is of more recent vintage than the idea of free enrichment of logical form as it was discussed in the previous sections. Once this relatively new conception is in place, an interesting possibility, suggested to me by Richard Breheny, opens up: that the pragmatic processes of developing the logical form into an explicated propositional form are exhausted by saturation and *ad hoc* concept construction. In other words, there may be no free enrichment, at least not of the sort that bothers the hidden indexicalists, the sort that involves the addition of a conceptual constituent to logical form and so a structural change between logical form and propositional form. With this possibility off the scene, a transparent (isomorphic) structural relationship between the two can be preserved, in accordance with a particular strict version of the Principle of Compositionality favoured by many formal semanticists. On the other hand, *ad hoc* concept formation is something of a wild beast from the point of view of a semanticist, since it gives considerable power to the pragmatic system in deriving the content (if not the structure) of the proposition expressed. It introduces an element of context-sensitivity for every predicate in the language, so that applying the conditional T-sentence format to a simple sentence like (60a) gives something like (60b), or, even less revealingly, (60c):

(60) a. Mary is tired.
b. If the property [tired#] is referred to by 'tired' in an utterance of (a), then that utterance is true iff tired#(Mary).
(where [tired#] can be any of a range of different enrichments of the concept encoded by 'tired')
c. If a property F is referred to by 'tired' in the course of an utterance of (a), then that utterance is true iff F(Mary).

I suspect that many natural language semanticists would not be comfortable with formulations of this sort which do not capture lexical meaning, which is, arguably, a fundamental component of semantic knowledge.

Anyway, it is not yet clear that the idea is feasible. Can all the cases of unarticulated constituents discussed in section 4.3 (see examples (19) and (20)) be absorbed by the *ad hoc* concept machinery? There are promising candidates, such as the inferred instrumental or manner constituents: different manners of killing, for instance, (with a knife, by poisoning, etc), and different ways of cutting (with a knife, with scissors, with a lawn-mower, etc) are plausible cases of narrowing the general lexical concept down to a more specific subtype. Similar comments apply to the strengthening of certain encoded scalar concepts (e.g. 'if' to 'if and only if', 'four' to 'exactly four') and to the loosening of certain encodings of a very precise or idealised sort (e.g. 'hexagonal' to 'roughly hexagonal', 'flat' to 'more or less flat'). But, intuitively at least, the unarticulated location constituents are much less amenable; the particularity of 'kill x in a garden', or 'cut x at grandmother's house' does not seem to be the stuff of stable atomic concepts, and, in the case of the cause-consequence constituent recovered in example (2), and in many other instances of 'and'-conjunction, there doesn't appear to be any lexically given concept on the basis of which it could have been constructed. Obviously, this is an issue that needs a great deal more consideration, but, as things currently stand, it seems that there are four different sorts of pragmatic task involved in explicature derivation: disambiguation, saturation, free constituent enrichment, and *ad hoc* concept construction.

5 Semantics, context and communication

An explicature has two essential properties: it is an assumption communicated by an utterance and it has a propositional form which has been pragmatically developed out of a logical form of the utterance. As the last section should have made evident, it is a very

different sort of entity from any of the semantically-oriented concepts of 'what is said' (or 'proposition assigned to a sentence'), although both figure on the same side of a distinction with implicatures. What is said by an utterance is usually characterised as (context-invariant) decoded linguistic meaning together with those contextually given values for indexicals that can be supplied without any consideration of speaker intentions or intervention of pragmatic principles. I can see no role for this concept in a theory of utterance interpretation. The job of the pragmatic inferential system is to deliver the communicated assumptions (explicatures and implicatures); the information available to it includes, crucially, the logical form of the linguistic expression employed. There is no other intermediate isolable 'semantic' portion, or level, of information which enters into the inferential process.

According to the hidden indexicalist view scouted above, semantics is concerned with the interpretation of the logical form of a sentence relative to its context of utterance. This coincides with a concern to characterise the semantics of sentences in truth-conditional terms, given the correctness of the claim that any contribution of context to truth conditions is traceable to some element in the logical form of the utterance. One way of doing this is through the conditional T-sentence approach illustrated above, which packs all contextual variables into the antecedent, and makes the truth statement conditional on their being given a particular value.[19] For instance:

(61) a. It is raining (t) (l).
b. If t refers to time T_i and l refers to location L_j in the course of an utterance of (a), then (a) is true just in case it is raining in L_j at T_i.

A free enrichment account of this and other examples, which I have been advocating, shoves a wedge into the picture: there is no variable in the logical form to which an abstract value can be given in the antecedent of the conditional form, so that an element of the truth conditions cannot be captured in the truth statement in the consequent. Consider again the 'and'-conjunction case we began with:

(62) Bill ran into John and John stopped his car in an illegal position.

[19] I am not attributing this particular approach to Stanley; I don't know whether he would approve it or not. I choose it as the most promising way I know of to give a truth-conditional account of natural language which both handles the context-sensitivity of the proposition expressed and is revealing of the meaning encoded in natural language expressions.

The truth conditions of each of the conjuncts may be given individually and the truth-conditional effect of the lexical item 'and' (a truth-functional contribution) can be stated. However, the cause-consequence relation, which contributes to the truth conditions of this sentence/utterance (recall the invalid argument in example (2)), would not be captured by composing these three sets of truth conditions together, nor by any other means, except an arbitrary stipulation that there is a relational variable in the logical form of conjunctive sentences. The same goes for all the other cases of free enrichment. If we also bring into the account the context-sensitivity of predicates, as discussed in the preceding section, and try to incorporate that in the antecedent too (recall example (60)), we seem to be heading fast in the direction of vacuity of the following sort:[20]

(63) If the proposition P is expressed by an utterance of sentence S, then S is true iff P.

The issues for the advocate of a truth-conditional semantic interpretation of logical forms are: how much context-dependence (linguistic underdeterminacy) can be, and should be, accommodated, how is the line to be drawn in a non-arbitrary way, and to what extent are native speaker intuitions about truth conditions to be observed?

An alternative would be to abandon the idea that all elements of truth-conditional content are either determined by or, at least, traceable to some constituent in logical form (linguistic meaning), and to relocate truth-conditional semantics, so that it is determinate propositional forms of the internal mental representation system that are to be semantically interpreted (that is, related to the conditions for their truth). On such a conception, the so-called 'semantic' output of the linguistic system (logical form(s)) is simply the result of a partial mapping onto that internal (conceptual) representation system, which is the real object of semantic evaluation.

Finally, when we draw back from the specific issue of indexical saturation versus free pragmatic enrichment and pan across the different theoretical positions supporting each stance, we see two quite different pictures: the one starts from a broad cognitive perspective and takes as its main focus ostensive communicative acts, it is concerned with processes and mechanisms, and it uses a range of psychological arguments, including evolutionary considerations; the other is focussed specifically on the nature of

[20] Recanati (forthcoming a) presses this point still further in his account of the radical and generalised underdeterminacy of truth conditions, given what Searle (1983) calls the Background, that is, a set of common practices and basic assumptions which are seldom represented, but which are crucial ingredients of the truth conditions of the vast majority of utterances.

'genuine linguistic speech acts', their syntax, logic and semantics, it is philosophically-based and is not constrained by processing considerations. They look like two different species of endeavour, but, in the long run, they will have to mesh with each other, and at least one of them will have to give up its view on the way in which the context-sensitivity of the proposition expressed by a linguistic utterance is realised in the human cognitive system.

References

Asher, N. & Lascarides, A. (1995). Lexical disambiguation in a discourse context. *Journal of Semantics* 12, 69-108.

Bach, K. (1994). Conversational impliciture. *Mind and Language* 9, 124-162.

Bach, K. (1997). The semantics/pragmatics distinction; what it is and why it matters. *Linguistische Berichte* 8, Special Issue on Pragmatics, 33-50. Reprinted in K. Turner (ed.) 1999. *The Semantics/Pragmatics Interface from Different Points of View* (CRiSPI 1), 65 - 84. Elsevier Science.

Bach, K. (2000). Quantification, qualification and context: a reply to Stanley and Szabo. *Mind and Language* 15, 262-283.

Baron-Cohen, S. (1995). *Mindblindness: An Essay on Autism and Theory of Mind*. Cambridge, MA: MIT Press.

Breheny, R. (1999). *Context Dependence and Procedural Meaning: the Semantics of Definites*. PhD dissertation, University of London.

Burton-Roberts, N. (1994). Ambiguity, sentence, and utterance: a representational approach. *Transactions of the Philological Society* 92, 179-212.

Carston, R. (1988). Implicature, explicature and truth-theoretic semantics. In R. Kempson (ed.) 1988. *Mental Representations: the Interface between Language and Reality*. Cambridge: Cambridge University Press. 155-81. Reprinted in Davis, S. (ed.) 1991. *Pragmatics: A Reader*. Oxford: Oxford University Press. 33-51.

Carston, R. (1996). Enrichment and loosening: complementary processes in deriving the proposition expressed? *UCL working Papers in Linguistics* 8, 61-88. Reprinted 1997 in *Linguistische Berichte* 8, Special Issue on Pragmatics, 103-127.

Carston, R. (1998a). *Pragmatics and the Explicit/Implicit Distinction*. PhD thesis, University of London.

Carston, R. (1998b). The semantics/pragmatics distinction: a view from Relevance Theory. *UCL Working Papers in Linguistics* 10, 53-80. Reprinted in K. Turner (ed.) *The Semantics/Pragmatics Interface from Different Points of View* (CRiSPI 1), 85-125. Elsevier Science.

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

Clark, H. (1996). *Using Language*. Cambridge University Press.

Fodor, J. (1983). *The Modularity of Mind*. 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. *Studies in the Way of Words*, 22-40. Cambridge, Mass.: Harvard University Press..

Heim, I. & Kratzer, A. (1998). *Semantics in Generative Grammar*. Oxford: Blackwell.
Higginbotham, J. (1988). Contexts, models, and meanings: a note on the data of semantics. In R. Kempson (ed.) *Mental Representations: the Interface between Language and Reality*, 29-48. Cambridge: Cambridge University Press.
Katz, J.J. (1972). *Semantic Theory*. New York: Harper and Row.
Kempson, R., Meyer-Viol, W. & Gabbay, D. (2000). *Dynamic Syntax: The Flow of Language Understanding*. Oxford: Blackwell.
Larson, R. & Segal, G. (1995). *Knowledge of Meaning: An Introduction to Semantic Theory*. Cambridge, Mass.: MIT Press.
Marten, L. (1999). *Syntactic and Semantic Underspecification in the Verb Phrase*. PhD thesis, SOAS, University of London.
Neale, S. (2000). On being explicit: comments on Stanley and Szabo, and on Bach. *Mind and Language* 15, 284-294.
Perry, J. (1986). Thought without representation. *The Aristotelian Society Supplementary Volume* LX, 137-151.
Perry, J. (1998). Indexicals, contexts and unarticulated constituents. In A. Aliseda, R. van Glabbeek & D. Westerstahl (eds.) *Computing Natural Language*, 1-11. Stanford University: CSLI Publications.
Recanati, F. (1989). The pragmatics of what is said. *Mind and Language* 4, 295-329. Reprinted in S. Davis (ed.) 1991. *Pragmatics: A Reader*. Oxford: Oxford University Press. 97-120.
Recanati, F. (1993). *Direct Reference: From Language to Thought*. Oxford: Blackwell.
Recanati, F. (forthcoming a). Destabiliser le sens. *Revue Internationale de Philosophie*: Special issue devoted to John Searle and edited by Daniel Vanderveken.
Recanati, F. (forthcoming b). Unarticulated constituents.
Scholl, B. & Leslie, A. (1999). Modularity, development and "theory of mind". *Mind and Language* 14, 131-153.
Searle, J. (1983). *Intentionality*. Cambridge: Cambridge University Press.
Segal, G. (1994). Priorities in the philosophy of thought. *Aristotelian Society Supplementary Volume* LXVIII, 107-130.
Spencer-Smith, R. (1987). Survey: semantics and discourse representation. *Mind and Language* 2, 1-26.
Sperber, D. (1994a). Understanding verbal understanding. In J. Khalfa, J. (ed.) *What is Intelligence?*, 179-198. Cambridge: Cambridge University Press.
Sperber, D. (1994b). The modularity of thought and the epidemiology of representations. In Hirschfeld, L. & Gelman, S. (eds.) *Mapping the Mind: Domain Specificity in Cognition and Culture*, 39-67. Cambridge: Cambridge University Press.
Sperber, D. (forthcoming). Metarepresentations in an evolutionary perspective. In D. Sperber (ed.) *Metarepresentations*. Oxford: Oxford University Press.
Sperber, D. & Wilson, D. (1986). *Relevance: Communication and Cognition*. Oxford: Blackwell.
Sperber, D. & Wilson, D. (1995). Postface. In second edition of *Relevance: Communication and Cognition*. 255-279. Oxford: Blackwell.
Sperber, D. & Wilson, D. (1998). The mapping between the public and the private lexicon. In: P. Carruthers & J. Boucher (eds.) *Language and Thought: Interdisciplinary Themes*, 184-200. Cambridge: Cambridge University Press.

Stainton, R. (1994). Using non-sentences: An application of Relevance Theory. *Pragmatics and Cognition* 2, 269-284.
Stainton, R. (1997). Utterance meaning and syntactic ellipsis. *Pragmatics and Cognition* 5, 51-78.
Stainton, R. (1998). Quantifier phrases, meaningfulness 'in isolation', and ellipsis. *Linguistics and Philosophy* 21, 311-340.
Stainton, R. (forthcoming). In defence of non-sentential assertion.
Stalnaker, R. (1989). On Grandy on Grice on Language. Unpublished paper, MIT. Abstract in *Journal of Philosophy* LXXXVI, 526-7.
Stanley, J. (2000). Context and logical form. *Linguistics and Philosophy* 23, 391-434.
Stanley, J. & Szabo, Z. (2000a). On quantifier domain restriction. *Mind and Language* 15, 219-261.
Stanley, J. & Szabo, S. (2000b). Reply to Bach and Neale. *Mind and language* 15, 295-298.
Travis, C. (1985). On what is strictly speaking true. *Canadian Journal of Philosophy* 15, 187-229.
Travis, C. (1997). Pragmatics. In B. Hale. & C. Wright (eds.) *A Companion to the Philosophy of Language,* 87-107. Oxford: Blackwell.
Walker, R. (1975). Conversational implicatures. In S. Blackburn (ed.) *Meaning, Reference and Necessity*, 133-181. Cambridge: Cambridge University Press.
Wilson, D. (1999). Metarepresentation in linguistic communication. *UCL Working Papers in Linguistics* 11, 127-161. Also in D. Sperber (ed.) (2000). *Metarepresentations*, 411-448. Oxford: Oxford University Press.
Wilson, D. & Sperber, D. (1981). On Grice's theory of conversation. In Werth, P. (ed.) *Conversation and Discourse*, 155-178. London: Croom Helm.
Wilson, D. & Sperber, D. (1988). Mood and the analysis of non-declarative sentences. In J. Dancy, J. Moravcsik & C. Taylor (eds.) *Human Agency: Language, Duty and Value.* Stanford, CA: Stanford University Press.
Wilson, D. & Sperber, D. (1993). Linguistic form and relevance. *Lingua* 90, 1-25.
Wilson, D. & Sperber, D. (2000). Truthfulness and relevance. This volume.