Chapter 26

Pragmatics and Semantics

Robyn Carston

Abstract

A cognitive-scientific approach to the pragmatic interpretive ability is presented, according to which it is seen as a specific cognitive system dedicated to the interpretation of ostensive stimuli, that is, verbal utterances and other overtly communicative acts. This approach calls for a dual construal of semantics. The semantics which interfaces with the pragmatic interpretive system is not a matter of truth-conditional content, but of whatever components of meaning (lexical and syntactic) are encoded by the language system (independent of any particular use of the system by speakers in specific contexts). This linguistically provided meaning functions as evidence that guides and constrains the addressee's pragmatic inferential processes whose goal is the recovery of the speaker's intended meaning. Speakers communicate thoughts (explicatures and implicatures), that is, fully propositional (truth-evaluable) entities, and it is these that are the proper domain of a truth-conditional (referential) semantics.

Key words:

pragmatics module, ostensive stimuli, communicative development, evolution of pragmatics, theory of mind, encoded meaning, linguistic semantics, explicature, truth-conditional semantics

1. Introduction: Pragmatics First

There was a time when pragmatics was viewed as the 'wastebasket' of linguistics, a bin for dumping whatever recalcitrant bits of utterance meaning could not be accommodated by the formal methods of syntax and semantics.[1] Happily, things have moved on since then and a more systematic approach has been taken to pragmatic phenomena (the contents of the wastebasket); for instance, a distinction between two kinds of speaker meaning has been made (that is, between what is explicitly communicated and what is implicitly communicated) and different kinds of pragmatic contribution to each of these levels have been investigated (e.g. disambiguation, indexical reference and other saturation processes, modulation of word meanings in context, scalar implicatures and other kinds of implicature, descriptive versus interpretive uses of language, ad hoc concept construction, the derivation of attitudinal meaning, and more). Nevertheless, the assumption that semantics (context-invariant sentence meaning) is somehow primary and that we only turn to pragmatics when it seems that a semantic account cannot be given still tends to prevail. In this chapter, I will take a different approach and, following the (somewhat unusual) order of the conjuncts in the title of this chapter, will attempt to take a

[1] It was Bar-Hillel (1971) who coined the term 'pragmatics wastebasket', reflecting the attitude of the time. More than 25 years later, Bach (1997, 36) wrote, 'In linguistics, the category of pragmatics has served mainly as a bin for disposing of phenomena that would otherwise be the business of semantics (as part of grammar) to explain. Relegating such phenomena to pragmatics freed linguistic theory, already becoming more and more complex, of numerous additional complications.'

resolutely 'pragmatics first' approach, arguing for the logical and temporal priority of pragmatics from three perspectives: communicative, developmental and evolutionary.[2]

As discussed here, pragmatics is the study of the human capacity for ostensive-inferential communication, that is, the ability to produce and comprehend acts of overt communication, in particular verbal utterances, but also certain non-verbal behaviours, including pointing, miming, and other ostensive bodily gestures. What distinguishes this sort of communicative behaviour from other kinds of intentional behaviour is the type of intention that it manifests, that is, a complex higher-level intention to make evident to an addressee the intention to make some thought(s) manifest to him. I will refer to this as the 'communicative intention' throughout.[3] The domain of pragmatics is often given as 'speaker meaning', but we can talk of it more broadly as 'communicator's meaning', thus taking in non-verbal and multi-modal communication too.[4]

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[2] For a wide-ranging survey of how the relation between pragmatics and semantics has been construed since the 1930s to the present day, see Recanati (2004b).

[3] In relevance theory, a *communicative intention* is defined as an intention 'to make it mutually manifest to audience and communicator that the communicator has a particular informative intention', and an *informative intention* is defined as an intention 'to make manifest or more manifest to the audience a set of assumptions [thoughts (RC)]' (Sperber and Wilson 1986, 54-64). This is a fairly major modification of the original pioneering account of speaker meaning given by Grice (1957, 1989) in terms of reflexive intentions (see also Bach and Harnish 1979). Other theorists focus more on the communicator's manifesting an intention that the addressee should *jointly attend* with her to some information (Tomasello 2008). For the purposes of this chapter what these definitions have in common is more important than their differences: they all aim to capture the *overtness* of the kind of communication at issue and they all involve higher-order theory of mind (that is, several levels of metarepresentation of mental state representations).

[4] For discussion of the communicative role of facial expressions, affective tones of voice and manual gestures, when used alone or together with language, see Wharton (2009) and Kendon (2014).

Considered in relation to this view of pragmatics, there are two quite distinct domains that are called 'semantics': (i) the meaning contributed by the linguistic expressions used by someone communicating verbally; (ii) the content of the thoughts communicated. The relations among the three components (linguistic semantics, pragmatics and thought semantics) will emerge as we progress, but, in brief, the picture is as follows. Thoughts (or propositions) are the primary carriers of truth-conditional content (that is, they are truth-evaluable representations of the world); what communicators intend to convey by their ostensive acts (e.g. utterances) is thoughts, and, when they use language, the meaning of the linguistic expressions they employ provides rich evidence of the thoughts they intend to communicate but inevitably falls short of encoding those thoughts (fully truth-conditional contents).[5]

This gap between the linguistically encoded meaning ('semantics', in the first sense) and the thoughts communicated arises not only for implicitly communicated content (implicatures), but also at the level of what is explicitly communicated (explicature), as in the following example:

(1) She's had enough.

We can easily envisage a range of different discourses and extra-linguistic contexts in which this sentence might be uttered by a speaker intending to communicate not only any number of very different implicatures (e.g. that she needn't eat any more; that she's going

[5] The cognitively-based view of pragmatics and semantics that I present here is largely derived from work in relevance theory (Sperber and Wilson 1986, 2002; Carston 1999, 2002, 2004; Wilson and Sperber 2004, 2012; Wilson this volume), but its broad outlines could be compatible with alternative views on the specifics of the pragmatic principles or maxims that guide utterance interpretation.

to leave her husband; that she should get some rest, and so on), but also any number of very different explicatures, that is, explicitly communicated thoughts that are built out of the linguistically encoded meaning:

(2) a. Mary has eaten enough of her dinner to satisfy her mother's wishes.

b. Karen has drunk enough fruit juice to reach the limit of her daily sugar intake.

c. Jane has endured enough bad treatment from her husband to the point of being unable to take any more.

d. Rachel has worked hard enough (and long enough) to be ready now to retire.

e. …

The key pragmatic contributions here are the assignment of a referent to the pronoun 'she', the specific interpretation of the very general verb 'have', and the completion of 'enough' (of what?, to what end?). This is a very ordinary conversational use of a sentence which, I hope, is sufficient to provide some initial grounding to the claim that, as interpreters of utterances addressed to us, we inevitably employ pragmatic inference (constrained by decoded linguistic semantic meaning) in identifying the proposition the speaker is explicitly communicating.

The emphasis in this chapter is on pragmatics as a human cognitive capacity and so on the study of pragmatics as falling within the cognitive sciences, from which it follows that pragmatic theories should be responsive to relevant empirical research on human cognition: its architecture and its evolution, the nature and time course of the processes responsible for understanding acts of ostensive communication, and the

development of the relevant cognitive capacities in young children. So, in the next section, I discuss the human pragmatic and linguistic semantic capacities from the following three perspectives: first, the architecture of the cognitive systems responsible for utterance interpretation; second, the evolutionary emergence of pragmatics and language (hence of linguistic semantics) in human cognition; third, the development of communicative competence (pragmatic and semantic) in the child. However, much work in modern pragmatics has its origins in the philosophy of language, where it was inevitably viewed in relation to semantics construed as concerning truth-conditional contents. So, in section 3, I present some of this work and its relation to a more cognitively-oriented approach to pragmatics and semantics. I conclude, in section 4, with a short discussion of the more fundamental kind of semantics, the semantics of thoughts (whether communicated or not), which is entirely independent of pragmatics, and is the proper domain of truth-conditional content.

2. Pragmatics and Semantics in Cognitive Science

2.1 Pragmatics, semantics and cognitive architecture

From the perspective of human cognitive architecture, the pragmatics-semantics interface is the point where the meaning or content provided by our linguistic knowledge interacts with the inferential capacities that we bring to bear on the interpretation of ostensive communicative acts. There are a range of possibilities about how the two systems at this interface interact: they might be rigidly separated and sequential in their operation; they might be distinct systems in so far as they deploy their own specific procedures but

nevertheless operate in parallel; they might not be distinguishable in any interesting sense and instead constitute a single general interpretive system that uses information from any source (perception, language, memory) as it becomes available.

The idea that our cognitive capacities are significantly modular in their architecture was brought to prominence by Jerry Fodor (1983). On his construal, a modular system is one which applies to a limited specific stimulus domain and is encapsulated from top-down expectations and utilities of the overall cognitive system, thus being both rigid in its operations and also having a kind of objectivity in representing the input stimulus (uncontaminated by beliefs, desires, hopes). In his view, only the peripheral systems, that is, those systems that present aspects of the outside world to our central thought processes, are modular. So, while our various perceptual systems and the linguistic parser are modules, the central conceptual systems, whose job it is to reach well-founded decisions about what to believe and what to do, have to be highly context-sensitive (responsive to relevant top-down information) and so cannot be modular. Interpreting utterances and other communicative acts is clearly such a context-sensitive process and so, on this Fodorian view, our pragmatic capacities cannot but be non-modular.

However, pragmatic processes seem to have at least some of the characteristics of an autonomous mental system. Ever since Grice, it has been widely assumed that overtly communicative behaviour is interpreted in accordance with maxims or principles that do not apply more generally (to the interpretation of other kinds of purposive behaviour). For instance, Gricean maxims of quantity and quality, and their neo-Gricean modifications (e.g. Horn 1984, Levinson 2000), apply only to the domain of rational communicative behaviour, specifically linguistic utterances; no-one would expect the information we might gain from watching someone's intentional but non-communicative behaviour (e.g. cooking a meal, packing a suitcase) to meet the standards of informativeness, relevance

and truthfulness we expect when someone overtly requires us to direct our attention to the stimulus he has produced as is the case in overt communication.[6] Furthermore, the processes of utterance understanding are spontaneous, automatic and fast – we can't help but infer a speaker's meaning when an utterance is directed at us (and, often, even when it is not). Sperber and Wilson (2002) have taken these observations seriously and proposed that pragmatics is indeed a modular mental system, albeit not in quite the Fodorian sense in which input systems (perception and language) are modular.

The claim that pragmatics is modular has to be situated within a broader view of the whole mind as massively modular (Sperber 1994a, 2005; Carruthers 2006). A driving consideration here comes from ideas in evolutionary psychology (see, for instance, Cosmides and Tooby 1994): just as natural selection favours the development of specific organs (eyes, ears, hearts, livers) to carry out specific survival-enhancing biological processes, so it favours specialised solutions to the specific cognitive problems the organism encounters in its environment, that is, mechanisms that are dedicated to processing a subscribed input domain whose regular properties can be exploited by specific cognitive procedures. On this basis, it is far more reasonable to suppose that our central cognitive system consists of multiple specialised subsystems rather than a single general-purpose system for interpreting and responding to the myriad issues the world presents us with. Of course, once we move beyond the peripheral 'input' systems that Fodor focused on to the central conceptual systems, the concept of a 'module' has to be modified somewhat, in particular with regard to the issue of the information available to

[6] It has been pointed out to me (by both Deirdre Wilson and Yan Huang, independently) that these claims are somewhat controversial. Indeed, I should acknowledge that Grice himself maintained that the conversational maxims were special cases of principles governing more general cooperative (not just communicative) behaviour, e.g. 'Quantity. If you are assisting me to mend a car, I expect your contribution to be neither more nor less than is required; … Relation. I expect a partner's contribution to be appropriate to immediate needs at each stage of the transaction; …' (Grice 1975: 47-48). However, Grice's examples (of cooperative interactions not involving 'talk', as he puts it) raise further questions for me, in that, although they are clearly not cases involving speaker meaning, I think some of them may fall within the broader domain of ostensive communication. No doubt, there are issues here that call for further thought.

the system. Sperber (1994a, 2000) develops an account in which conceptual modules are multiply interconnected, so that the procedures of each of the individual modules can be informationally encapsulated, while 'chains of inference can take a conceptual premise from one module to the next, and therefore integrate the contribution of each in some final conclusion' (Sperber 1994a: 133).

It is a defining property of pragmatic processes that they are context-sensitive, so, whatever the principles and procedures of the pragmatics module, they must have access to contextual assumptions from a wide range of sources (current perception, earlier discourse, general and cultural knowledge stored in memory). The account of pragmatics given in relevance theory provides a solution to this tension between responsiveness to broad context and the informational encapsulation of a modular system, in that the general comprehension procedure which is the engine of the system applies not only to the derivation of hypotheses about the communicated content (explicatures and implicatures) but also to the accessing of contextual assumptions. Here is the relevance-based comprehension procedure:

(3) a. Follow a path of least effort in constructing an interpretation (of the ostensive stimulus) - that is, in resolving ambiguities and referential indeterminacies, enriching encoded meaning, *supplying contextual assumptions*, computing implicatures, etc.

b. Stop when your expectations of relevance are satisfied.

It is not my concern here to motivate this procedure or explain the general cognitive underpinnings of our context-specific 'expectations of relevance' which play the crucial role in terminating the process and settling on an interpretation (for detailed accounts, see

Wilson and Sperber 2004, 2012; Wilson this volume). The key point here is that, in effect, the pragmatics module itself regulates its accessing of information stored in other conceptual modules and imposes a degree of encapsulation which ensures that the interpretive process can be both swift and accurate.

A further important feature of Sperber and Wilson's view of the pragmatics module is that it is like the more general 'theory of mind' module in being inherently *metarepresentational*, that is, it explains specific kinds of human behaviour in terms of mental representations in the mind of the person who produced the behaviour. So, while the outputs of our perceptual systems consist of base-level descriptive representations like 'X is red' or 'X is screaming', the outputs of the theory of mind module are higher-order representations in that they are attributions of lower-order mental representations to others, e.g. 'X believes *there are chocolates in the box*' and/or 'X desires *to eat some chocolates*', and so too those of the pragmatics module, e.g. 'X intends me to recognise that she is informing me that *she is hungry and wants to eat lunch now*'. Thus the pragmatics module can be viewed as a special sub-module of the more general theory of mind module; that is, it has its own dedicated procedures (such as (3) above and perhaps other more specific heuristics and inferential short-cuts based on it) which would not work if applied to other kinds of theory of mind tasks (for detailed argument along these lines, see Sperber and Wilson 2002, Wilson 2005).[7]

How are we to construe the pragmatics-semantics interface within this modular picture of the mind? Assuming with Fodor (and Sperber and Wilson) that language is a

[7] See Siegal and Surian (2006) for a critical assessment of Sperber and Wilson's view of pragmatics as a specialised submodule of theory of mind and Fodor (2000) for criticism of the massively modular view of the mind.

modular system,[8] then the output of that system is a representation of the context-invariant meaning provided by the sentence (that is, the meaning encoded in its lexical and syntactic components). We can call this a 'semantic representation'.[9] What form it takes is part of the subject matter of linguistics and will depend on the semantic analyses of a great many distinct linguistic phenomena and how they interact, e.g. quantification, tense and aspect, negation, mood and modality, as well as resolution of more general issues about the nature of the lexical meaning of open-class words (nouns, verbs, and adjectives), closed classes including coordinating connectives like 'and', 'or', 'if', 'but', and 'for', subordinating connectives like 'although', 'because', 'when', and 'while', prepositions and derivational affixes like '-ize', '-er', '-al'. According to relevance theorists and to 'contextualists' more generally, this semantic representation is not the kind of entity to which truth conditions can be assigned, that is, it is neither fully propositional nor in the right format to constitute a thought, so is not susceptible of truth evaluation. However, there is a long tradition of work in the philosophy of language according to which sentence meaning *is* truth-

[8] See Fodor (1983), Pinker (1994) and Carston (1996) for discussion of evidence in support of the position that both initial lexical access and syntactic parsing are encapsulated from top-down expectations. For dissenting views, see Marslen-Wilson and Tyler (1987), Elsabbagh and Karmiloff-Smith (2004) and Prinz (2006).

[9] Chomskyan linguists are more apt to talk of this representation as 'LF' or 'logical form' (as does Fodor (1983: 88-90) in his discussion of the 'shallow output' of the language module). I avoid this terminology here for two reasons: (i) what is meant by 'logical form' is notoriously unstable across linguists and philosophers, many of the latter using it for a much richer representation of sentence meaning unconcerned with the different sources of this meaning (context-invariant/linguistic or context-variable/pragmatic), and (ii) use of the term '*semantic* representation' is more consonant with the main focus of this chapter, which is on the interface of pragmatics and 'semantics'. However, I find appealing the view sometimes expressed by Chomsky that, from the internalist representational perspective, there is only syntax and pragmatics, so what I'm calling a 'semantic' representation here can be thought of as simply the one among the various syntactic representations of a sentence that interfaces most directly with the internal conceptual system (Chomsky 2000).

conditional. I will consider some versions of this view in section 3, but, for now, the focus is on the interface of this semantic representation, whether propositional or not, with pragmatics.

Consider again the example in (1), repeated here:

(1') She's had enough.

Without attempting anything like a proper semantic analysis, we can describe the context-independent meaning of this sentence along the following lines: the pronoun 'she' provides a variable and a constraint on the specific content that can be pragmatically assigned to it, namely, that of being a particular female; the verb 'have' provides a very general meaning (or, if it is ambiguous, perhaps several somewhat more specific meanings: one that is similar to 'consume', another similar to 'experience'); in addition to its meaning, the adjective 'enough' may specify some open slots corresponding to the questions 'enough of what?', 'enough for what purpose?; the syntactic structure of the sentence indicates that certain relations (agent, patient, etc.) hold between the referent of 'she' and that which she has had enough of. As uttered by a particular speaker to a particular addressee, this decoded meaning (i.e. the 'semantics' of the sentence type) is crucial evidence constraining the inferences of the addressee's pragmatics system whose goal is the recovery of the thoughts the speaker is intent on communicating.

On the account as outlined so far, pragmatics and language (including semantics) constitute two distinct modular systems of the mind. The pragmatics module is activated whenever an ostensive stimulus (whether linguistic or non-linguistic) is registered, thus triggering the interpretation process. Consider a case of non-verbal ostension: your friend Mary is smiling fixedly at you and gesturing meaningfully with quick movements of her

head and eyes in the direction of someone, Y, who has just entered the room. Your pragmatics module is activated and infers from the evidence indicated by Mary's ostensive behaviour that she is communicating that Y is her new boyfriend (whom she has excitedly told you about the previous night). In the case where Mary produces a verbal utterance, e.g. 'That's him', some of the evidence provided by the communicative act would come from linguistic semantics (the output of the language module) and this would strongly constrain your interpretation of the communicative act. In many instances, of course, linguistic evidence is far more detailed and fine-grained than this and provides immeasurably richer clues to the content the speaker wants to communicate than any nonverbal ostensive stimulus ever could. So there is a sense in which semantics is temporally prior in the processing stream (in that it provides input to pragmatics). However, when an utterance is produced (a linguistic ostensive stimulus), both systems are activated in parallel: the pragmatics module is triggered by the ostensive character of the stimulus and the language module by its linguistic character (whether speech or text), and the pragmatics may start working on non-linguistic clues even before it receives any semantic input.

There is an open question here about what unit of semantic representation is passed from the language system to the pragmatics system, but what is clear is that it is not a fully sentential semantic representation which is first formed and then handed over as a whole. Pragmatic hypotheses about the intended referent of an utterance-initial 'she' or 'that', for instance, are usually made well in advance of the whole sentence having been linguistically decoded and, in the case of multimodal ostensive stimuli (the usual case in face-to-face speech), those hypotheses may be informed by eye-gaze, pointing, or the perceptual salience of individuals in the external context.

2.2 Pragmatics and semantics from an evolutionary perspective

An interesting issue in the context of the 'pragmatics first' approach that I am taking here is the question of the evolutionary emergence of ostensive communication (hence pragmatics) and language (hence semantics) in the human species. Assuming that the picture outlined in the last section is correct, according to which language and pragmatics constitute two distinct but constantly interacting cognitive modules, they must surely have to some extent co-evolved, each fine-tuning the other. However, as Sperber (2000, 121) suggests, 'it still makes sense to ask which of these two, the linguistic or the metarepresentational [= the mind-reading/pragmatic (RC)], might have developed first to a degree sufficient to bootstrap the co-evolutionary process'.

There seem to be three possibilities: (a) language first, then communication/ pragmatics, with the former enabling the latter; (b) communication/pragmatics first, then language, with the former creating a niche for the emergence of the latter; (c) independent, possibly parallel, emergence of the two systems, with subsequent recruitment of one by the other and co-evolution. The first view is quite widely held,[10] but Sperber (2000) argues in favour of the second, that is, that our capacity for metarepresentation emerged first and enabled a rudimentary kind of (nonverbal) ostensive-inferential communication. The idea is that the metapsychological ability to attribute contentful mental states to each other (beliefs, desires, intentions, etc.) evolved as an adaptation to the pressures of living in

[10] See, for instance, Millikan (1984) and Dennett (1991). A leading thought on the side of the 'language first' position is that verbal utterances introduce public, hence perceptible, representations into the environment and so may pave the way for the development of a cognitive ability to grasp and represent representations *qua* representations, that is, a metarepresentational ability, which (perhaps) could extend from linguistic representations to mental representations and so underpin a theory of mind capacity. However, Sperber (2000, 121-22) argues, convincingly in my view, against the plausibility of this scenario.

social groups, greatly enhancing our ancestors' ability to predict and explain each other's behaviour and so to both compete and co-operate better with each other. Sperber outlines how this awareness of the mental states of others opens up possibilities for various kinds of intentionally informative behaviour, including ultimately 'ostensive' communication, through which, as communicators, we can overtly indicate our intention to alter the mental states (beliefs and desires) of others, and, as addressees, we can gain access to a huge amount of information, the understanding and acceptance/rejection of which are both based on our assessment of the speaker's mental states (her beliefs and intentions). Ostensive-inferential communication, Sperber suggests, may have initially been a side effect of our theory-of-mind ability, but its highly beneficial character would have led to its becoming a specialised function of that system, with its own dedicated computational procedures, hence the pragmatics submodule (Sperber 2000: 121-27).

Sperber further claims that ostensive communicative behaviour creates a particularly favourable environment for the emergence of a new adaptation, namely, the linguistic ability (hence linguistic semantics). He argues that language as manifest in public utterances requires that a pragmatic capacity already be in place, given that the linguistic expressions employed (phrases or sentences) do not encode the speaker's meaning (what she intends to communicate), even at the level of what is explicitly communicated (let alone implicature), where pragmatic inference is typically required for disambiguation, identification of entities referred to by use of pronouns and demonstratives, conceptual completions (recall the use of 'enough' in (1) above) and other kinds of meaning adjustment.[11]

[11] As well as arguments in favour of theory of mind/pragmatics first, Sperber (2000) gives interesting arguments *against* the language first position, based on the untenability of the code model of communication. See also Origgi and Sperber (2000) and Sperber and Origgi (2010).

However, Sperber does not address the question of the nature of the linguistic code that emerged or why it should have the properties that linguists have shown it to have: unbounded clausal embedding, long-distance dependencies, so-called 'island' constraints (e.g. 'Who did John call Mary and?' is glaringly ungrammatical but easily interpretable), seemingly redundant subject-verb inversions (e.g. 'Why did John go?' rather than 'Why John went?') and a variety of other complexities that are not inherently communication enhancing. This seems to me to leave an opening for the third possibility mooted above, namely, that the human language faculty emerged independently of the theory of mind/pragmatics capacity, perhaps in parallel with it (or even before it), and that the ostensive communicative environment that favoured the employment of a system of coded meanings led to the co-opting of this pre-existent system by pragmatics.

Noam Chomsky has always disputed the view that the primary function or purpose of language as he construes it (I-language, a computational procedure) is communication. Furthermore, he argues, on the basis of what we can discern from the archaeological record, language emerged quite suddenly in the mind/brain, such that it appears to be the result of some fortuitous and sudden mutation rather than of gradual processes of natural selection (see, e.g., Hauser, Chomsky and Fitch 2002, Chomsky 2010). On this view, the use of language for communication would have been a subsequent development, a matter of linking the core linguistic capacity to sensorimotor systems required for its externalisation in verbal production and for its perceptual registration in the first stage of verbal comprehension. From then on, we can envisage the two systems, pragmatics and language, co-evolving in ways that would facilitate the hugely beneficial function of verbal communication in human life, perhaps involving, on the one side, the establishment of pragmatic inferential short-cuts based on patterns of language usage, and, on the other

side, the coining of new lexical items to further constrain pragmatic inferences and so speed up comprehension.[12]

A tentative conclusion, then, is that language construed narrowly, as a recursive computational procedure, may have arisen in the human mind/brain independently of theory-of-mind or pragmatics, but that language construed more broadly, as a system for making public bits of coded information, would have both depended on and hugely enhanced the functioning of a pre-existing pragmatics system.

2.3 Pragmatic-semantic development in children

The domain of pragmatics is ostensive communication, an activity which, as far as we know, only humans are capable of.[13] Children manifest this kind of communicative capacity before they produce their first words. For instance, from the age of 12 months, infants use the ostensive gesture of pointing for a number of purposes, that is, not only when they want the addressee to give them something (proto-imperative pointing), but also when they want to share an experience with their care-giver (e.g. so they can jointly attend to a dog in the park) and even simply in order to be helpful to an interlocutor (e.g.

[12] An interesting speculation here is that certain words whose encoded meanings do not contribute to truth-conditional content but seem rather to function as pragmatic inference indicators might have arisen as a result of the deployment of the I-language system for communication. Candidates are 'discourse connectives' (e.g. 'however', 'moreover', 'after all', 'thus', 'anyway'), discussed in these procedural terms by Blakemore (1987, 2002), and various other apparently 'pragmatic' lexical items like politeness markers (e.g. 'please'), honorifics, and illocutionary indicators. (See Carston 1999, 2008a for further discussion bearing on this idea about the origin of linguistic devices with 'procedural' meaning, and Wilson 2011 for a comprehensive overview of the conceptual/procedural distinction in linguistic semantics).

[13] For discussion of the distinguishing characteristics of ostensive communication, including its dependence on a highly developed metarepresentational capacity, see Sperber 1994b, 2000, and for discussion of the absence of these characteristics in the communicative behaviour of other primates, see Tomasello 2006, 2008, and Levinson 2014.

to direct her attention to the keys she has dropped). At around the same age, they begin to respond to acts of pointing by others, directing their own attention to the apparent target of the point. The evidence for the latter two kinds of pointing, for sharing attention and experience, and for informing others helpfully, are a strong indication of the emergence of what Michael Tomasello and his colleagues term 'shared intentionality' (Liszkowski 2006, Tomasello 2008), the basis for a full-fledged theory-of-mind and the pragmatic capacity.

Early communication by pointing (and eye gaze) seems to be a human universal. Using a specially developed method (the 'decorated room' context) for eliciting spontaneous pointing, Liszkowski et al. (2012) observed and recorded the pointing behaviour of 10-14 month old infants with their caregivers across seven very different cultural settings, including Bali, Japan, Peru, Mexico and Papua New Guinea. They found no influence of cultural differences on pointing: all the infants spontaneously used pointing to communicate with their caregivers, and the behaviour emerged at the same age across all the cultures and with the same frequency of occurrence. Liszkowski et al. conclude that their findings 'support the existence of a gestural, language-independent universal of human communication that forms a culturally shared, prelinguistic basis for diversified linguistic communication' (Liszkowski et al. 2012: 698).

Children start producing words with appropriate meanings (often accompanied by pointing) in their second year of life, indicating an embryonic lexical semantic competence, whose growth escalates over the next few years (Bloom 2000, 25-47). This requires that they learn to make links between particular chunks of linguistic form and particular objects and activities in the world (or percepts/concepts of those objects and activities). Experimental work by Baldwin (1993), Bloom (2000) and Tomasello (2001) shows that, in the process of acquiring these form-meaning links, children are making

inferences about the referential intention of the speaker who has produced the word form. Consider, for instance, an experiment with 18-month-olds, which involved two new toys in the room, for neither of which the child had a name. When the experimenter introduced a new word by saying, e.g., 'It's a modi', the child did not link the word to the toy he was playing with, but rather looked away from that toy to the speaker/experimenter and then redirected his gaze to the object that she was looking at (the second toy, which was inside a bucket). When later asked to find the 'modi' he picked up the object the experimenter had been looking at in the bucket when she first uttered the word. Bloom (2000) maintains that what's involved here is the child's use of theory of mind (that is, the general capacity to attribute beliefs and intentions to others), but a stronger claim may well be warranted: given that these children are already in the business of ostensive communication, that is, they both have and interpret communicative intentions as manifest in pointing behaviours, it seems plausible that it is this pragmatic ability (rather than more general theory of mind abilities) that is doing the work here.

There are perceptual and conceptual constraints on the word meanings children acquire; for instance, they tend to interpret a new word form as a name for a whole object, e.g. 'hamster' for the whole animal, rather than for a subset of its properties, such as being small, furry and active (see Bloom 2000, chapter 4, on this 'whole object bias'). There seem also to be *pragmatic constraints* on the learning of word meanings, that is, constraints that are best accounted for in communicative terms. So, for instance, it is widely noted that children are strongly biased towards assuming that words do not have overlapping reference, that is, that each object can be named by only one word (Clark 2003). In a study in which 3-year-old children were introduced to a new noun together with an object, they interpreted the word as a label for the object only if the object was unfamiliar to them (that is, they did not already have a word for it); if the object was

familiar (that is, something for which they already had a word), they interpreted the new word as referring to some specific part or property of the object (Markman and Wachtel 1988). Similarly, when presented with two actions, one familiar and one unfamiliar, together with a new verb, e.g. 'The girl is torping', they assumed the new verb referred to the action for which they did not already have a name. These results have since been replicated in studies of much younger children (18-24 months old). According to the pragmatic account of this phenomenon, children's 'avoidance of lexical overlap' is explained by their presumptions about rational communicative behaviour. Specifically, the claim is that children expect speakers to use familiar (presumed shared) words for objects or actions on the basis that this facilitates hearers' understanding, so when a speaker/experimenter uses a novel word, they infer that she intends to refer to some other object/action than the one for which there is a familiar word (for details of the pragmatic reasoning attributed to the children, see Diesendruck and Markson 2001; Grassmann et al. 2009).

Of course, there is vastly much more to be investigated in children's pragmatic development especially as it interacts with their increasing semantic sophistication; for instance, the development of their referential abilities (the use of pronouns vs. demonstratives vs. descriptions of various sorts), their ability to infer various unarticulated constituents of explicatures, e.g. quantifier domains (as in 'Some students finished early') and implicit arguments (as in 'We've eaten'), quantifier scope relations (as in 'Everyone saw a famous actor'), the topic-comment distinction, indirect communication (via implicatures of different kinds), and the full range of non-literal uses of language (metonymy, metaphor, irony). My aim here has been just to advance the position that children are ostensive communicators before they are language users and that this communicative (pragmatic) ability plays a key role in their subsequent acquisition of word

meanings. For more extensive accounts of developmental pragmatics and the pragmatic foundations of much semantic development,[14] see Pouscoulous (2013), Matthews (2014), Zufferey (2015) and Rollins (this volume).

3. Semantics and pragmatics: philosophical perspectives

While the cognitive perspective taken in the previous section favours an account in which the pragmatic inferential capacity takes precedence over (linguistic) semantics, communicatively, evolutionarily and developmentally, when we turn to work on semantics and pragmatics in the philosophy of language, the perspective, at least until quite recently, has been quite different.

A key concept in traditional philosophy of language was that of the proposition semantically expressed by a sentence, that is, the truth-conditional content of the sentence, which was often equated with 'what is said' when the sentence is uttered. The centrality of this view of sentence semantics goes back to Frege, Russell and Carnap, who were first and foremost logicians, interested in the semantic properties of formal languages, such as the predicate calculus. However, they extrapolated from these artificial languages to human (natural) languages, which they assumed would have the same fundamental properties. So, just as the semantics of logical formulae was taken to be a matter of how

[14] I take it that, while learning the meaning of open-class content words (nouns, verbs, adjectives) is pragmatically mediated, as discussed here, there are closed-class functional words, including quantifiers, determiners, sentence operators (e.g. negation, disjunction, conjunction), and complementisers (e.g. 'that', 'to', 'whether'), whose semantic properties are more likely to come on-line as a consequence of stages of maturation of the grammar (for some discussion, see Crain and Thornton 2006).

the external world must be for them to be true (that is, their truth conditions) and the semantics of logical connectives such as '&', 'v', '¬' was fully captured by truth tables, it was assumed that natural language sentences also have truth conditions and natural language connectives such as '*and'*, '*or'*, '*if …then'* are truth-functional. The presence within natural languages of indexical elements (e.g. 'I', 'today'), which depend on a context of use for their 'semantic value', was seen as an interesting extra issue to be dealt with but no threat to the overall picture. The programme of giving a formal truth-theoretic account of the semantics of sentences was accordingly modified so that the truth of a sentence was made relative to a small number of contextual parameters (speaker, addressee, time, and place of utterance).

This 'ideal language' approach to the semantics of human language was challenged by Austin, Grice, Strawson, and the later Wittgenstein, who developed the 'ordinary language' approach, aimed at describing natural language phenomena rather than forcing them into the logical mould. They rejected the equation of sentence meaning with truth conditions and maintained that it is speech acts or utterances that express propositions and so have truth conditions; that is, it is the statement made that has truth conditions, the sentence *per se* does not. This 'speech act' view of truth-conditional content has had a huge impact on the study of linguistic meaning, including pragmatic-semantic accounts developed within the cognitive perspective discussed in the previous section. However, a less positive tendency among some practitioners of the ordinary language approach was to blur the distinction between the linguistic meaning of a sentence and its appropriateness in particular communicative contexts. This led to the positing of multiple ambiguities or rich complex meanings that seemed to be infected with features that arise from assumptions about their use by rational speakers. For instance, the connective 'and' was taken to have as one of its meanings a cause-consequence

component in order to accommodate cases like (4a), and the meaning of perception verbs (e.g. 'look', 'feel', 'sound', 'smell'), as in (4b), was taken to include the implication that it is doubtful that X is F.

(4) a. Mary insulted John and he walked out.

b. X looks F to me.

One of Grice's important contributions was to find a way to keep separate the intrinsic meaning of expression types and the meaning that arises from regularities of use, and to thereby reconcile the logical/ideal and the ordinary language accounts of linguistic content. He showed how extra-linguistic components of utterance meaning could be accounted for by a system of conversational maxims which regulate the rational communicative use of language and function as premises in the (non-demonstrative) inferential processes by which conversational implicatures are derived, e.g. 'John walked out because Mary insulted him' for (4a) and 'X is not F' for (4b). In this way, Grice maintained, the central semantic content of these utterances (that is, *what is said* by a speaker in uttering the sentence) could be kept apart from these usage effects and the truth or falsity of the utterance assessed on properly semantic grounds. For instance, an utterance of the sentence in (4a) is true if and only if two events took place (at particular times): (a) Mary insulted John, (b) John walked out.

This was a ground-breaking move and the beginning of modern pragmatics. However, in equating semantics with 'what is said' and pragmatics with 'what is conversationally implicated', it did not yet do justice to the full extent of the role of human pragmatic capacities in linguistic communication. The key construct that needed to be unpacked was Grice's notion of 'what is said', which was required to be both a semantic

and a pragmatic entity. It was a semantic notion in that it was closely tied to the conventional meaning of the words and syntax of the uttered sentence, with only a very minimal context-dependent component, restricted to choosing between the senses of ambiguous words and supplying values for indexicals, both apparently achieved on the basis of best contextual fit (Grice 1975: 44). However, it was pragmatic in that, like the act of implicating, the act of saying something comes with a communicative intention (an m-intention, in Grice's terms), so that what is said and what is implicated were taken together to constitute what the speaker meant by her utterance (for discussion, see Neale 1992, Recanati 2004a, chapter 1).

The problem is that no single level of meaning can do double duty as both sentence semantics and speaker-meant primary (explicitly communicated) meaning. What a speaker says and means is often something different (sometimes more specific, sometimes looser) than the semantic content of the sentence employed, even when any indexical elements have been assigned context-specific reference. Consider the following examples:

(5) a. It was snowing.

b. The children formed a circle.

Arguably, what a speaker of the sentence in (5a) explicitly means/communicates is that it was snowing in a particular place (say, London) on a particular day - her utterance would not be made true by snow falling anywhere else on that day. However, there is no location constituent in the sentence uttered so this cannot be a component of the meaning of the sentence. Turning to (5b), the sentence contains the word 'circle', which denotes a closed curved line whose every part is equidistant from a fixed point, so that is the meaning that the word contributes to the sentence. However, it is very likely that the concept

communicated by the speaker's use of the word is not that of the perfect geometric shape but rather a more general one that allows for quite a range of irregularities. What these examples indicate is that it is just not generally right that what a speaker says (and means) is as close to the conventional meaning of the sentence uttered as Grice's definition of 'what is said' requires (Grice 1975: 44). The construct has to be split into two distinct entities, one semantic and one pragmatic: the first is the meaning of the sentence (which is seldom, if ever, the same as the speaker's meaning) and the second is a fully pragmatic (speaker-meant) notion of 'what is said'.[15]

The upshot of this splitting of the Gricean concept of 'what is said' is a three-way distinction between sentence meaning (linguistic semantics), what is said (or explicitly communicated) and what is implicated (or implicitly communicated). This division has been quite widely accepted and adopted, albeit in different variants, by many philosophers of language (e.g. Recanati 1989, 2004a, Bach 1994, Stainton 2004, Neale 2004, Borg 2004, Cappelen and Lepore 2005). However, one of the several issues that remain unresolved concerns the nature of the semantic content that provides input to pragmatic inferential processes. While the two kinds of communicated contents, the pragmatic 'what is said' (or explicature) and conversational implicatures, are propositional and so truth-evaluable (that is, by and large, we communicate thoughts to each other), we can question the traditional philosophical view according to which sentence semantics is propositional.

The idea that the semantics of natural language sentences is and must be truth-conditional continues to have a strong hold in current philosophy of language (see Borg 2004, and Cappelen and Lepore 2005 for two recent manifestations of this view). Nowadays, this approach is known as '*minimal* semantics' and its central claims are (a)

[15] For more detailed discussion of these issues, see Carston 2004, Recanati 2004a, Carston and Hall 2012.

that sentences semantically express propositions, and (b) the involvement of context in the identification of that propositional content is 'minimal', at most involving the fixing of specific values for a small class of inherently indexical words. I will focus here on the version of this position taken by Emma Borg because she shares more of the assumptions that animate the cognitive-scientific approach taken in this chapter than do other semantic minimalists, thus enabling a more direct comparison of the positions. She adopts the Fodorian view of language as a modular input system and insists that the proposition semantically expressed by a sentence is an algorithmic function of the lexical and syntactic components of the sentence alone, that is, it is informationally encapsulated from extra-linguistic context and the hearer/addressee's pragmatic capacities.[16]

An apparent obstacle to this formally-driven kind of propositional semantics is the issue of indexical/demonstrative content. Most truth-conditional semanticists have resorted to notions like 'demonstrated object', 'contextually salient object' or 'intended object', which they include, by stipulation, in the set of objective contextual parameters, despite their being clearly pragmatic concepts. Borg, however, holds firm to the constraints of mental modularity and accepts that, in utterance comprehension, identifying the referents of demonstatives like 'this', 'that', 'she', 'he', 'it', 'then', 'there', etc., is a post-semantic (pragmatic) matter, requiring consideration of speaker intentions.

[16] Cappelen and Lepore (2005) seem happy to allow pragmatic considerations to enter into the identification of the intended senses of ambiguous words and the context-specific content of indexicals and demonstratives (pp. 147-49) and do not see this as problematic for their conception of the 'semantically expressed' proposition. It is difficult to make sense of this in the context of their claim that the semantically expressed proposition is the only component of utterance meaning that carries over from one context to another and which is, therefore, the one component of meaning that speaker and hearer can be fully confident of sharing with each other. (For further discussion of this point, see Recanati 2004a, Borg 2007 and Carston 2008a). In any case, whatever Cappelen and Lepore intend by their semantically expressed proposition, it is clearly a very different kind of entity from the one that Borg and other language modularists intend.

Nevertheless, she maintains, the modular semantic analysis of a demonstrative-containing sentence is a propositional form. Her idea is that each tokening of a demonstrative or indexical *syntactically triggers* the creation of a singular concept which is its semantic content, although figuring out what object that concept refers to requires consideration of speaker intentions and so is a task that lies beyond the remit of the formal semantic processor. According to this account, what we grasp when we understand an utterance of 'That's mine' is a proposition or thought of the shape [α is β's] where 'α' and 'β' are singular concepts. Each comes with a further bit of information along the lines that 'α' is a THAT concept while 'β' is a SPEAKER concept, information provided by the semantic character of the linguistic expressions, which functions as a constraint on how the singular concepts are subsequently integrated with other language-module-external information (from perception or memory).

As I see it, there are two problems with this propositional approach to linguistic semantics, the first quite specific, the second a more foundational issue. First, it is not at all clear that this modular semantic account of indexicals/demonstratives does result in a full-fledged propositional representation, that is, one with a truth-evaluable content. Take an utterance of 'That is a butterfly'. The semantics (i.e. the truth-conditional content) of this utterance, according to Borg, is [μ IS A BUTTERFLY], where BUTTERFLY is a general concept and μ is a singular concept, but where the object that constitutes the referent of that singular concept has not been identified (that being a post-semantic, properly pragmatic, matter). The problem is the following: if we, grasping just this formally supplied content, were presented with an exhaustive array of the butterflies in existence, we would not be able to judge whether this utterance was true or false. It is difficult, then, to see in what sense we can be said to have recovered the truth-conditional content of the

utterance; the constituent μ, allegedly a singular concept, does not seem (prior to the pragmatic identification of a referent) to make a truth-conditional contribution.

The second, more general, question is why we should expect or want the semantics of a natural language sentence to be a truth-evaluable entity. It seems right to expect the output of successful communication to be truth-evaluable thoughts (propositions) – it is these that we agree or disagree with, believe or doubt, hold people to, act on the basis of, etc., - but why should we expect them from a theory of the meanings encoded by sentences, meanings which function as multiply reusable tools in communication and which are virtually always supplemented, enriched or otherwise adjusted when so used. The best argument for the output of semantic processing being propositional would be that this property plays a key role in the overall account of verbal communication and comprehension in which it is lodged, but, as far as I can see, there just is no such argument. (For more detailed discussion of this issue, see Carston 2008a, 2008b.)

The account of pragmatics and semantics as cognitive capacities, presented in section 2 above, strongly suggests that what the semantics (the output of the language processor) provides is a representation which is not fully propositional. That is, given a theory of mind/pragmatics capacity already in place, so already recognizing ostensive stimuli and figuring out the content of communicative intentions, what the linguistic-semantic input is required to provide is reliable evidence that facilitates and constrains the processes of that system in its goal of recovering the speaker's intended meaning. Even some recent philosophically-oriented accounts that do not sign up to the specifics of this cognitive approach favour a non-propositional account of sentence semantics. For instance, both Bach (1994, 2006) and Recanati (2001, 2010), who do not adopt the modularity picture or express any views on the evolutionary or developmental priority of

pragmatics and semantics, eschew a propositional account of sentence meaning.[17] Recanati advocates what he calls 'truth-conditional pragmatics', that is, the position that linguistic semantics does not deliver truth conditions but rather 'conditional truth-conditions, or schemata, or characters, or whatever. To get full-blown truth-conditional content, pragmatics will be needed' (Recanati 2010: 3). Bach roundly criticizes positions on sentence semantics that 'accept Propositionalism, the fancy version of the old grammar school dictum that every complete sentence expresses a complete thought' (Bach 2006: 436). He maintains that many syntactically complete sentences are 'semantically incomplete', lacking at least one constituent needed for them to be evaluable as true or false. For instance, the process of compositionally assembling the content of sentences like 'John is ready', 'Mary is too tall', and 'Fred has drunk enough' from the meaning of their lexical and syntactic parts, does not result in a proposition but in what he calls a 'propositional radical' (ibid: 437).

To sum up, the specific cognitive-scientific approach adopted in relevance theory and the views of those philosophers who take seriously the role of pragmatics in identifying the communicated/speaker-meant content of linguistic utterances converge on a non-propositional construal of the meaning that sentences of the language provide to those pragmatic processes. Sentence semantics is merely a template or blueprint or schema, on the basis of which the fully truth-conditional explicature ('what is said', in Recanati's terms, 'impliciture' in Bach's terms) is pragmatically constructed.

[17] This position originated with the ordinary language philosophers: '… if you just take a bunch of sentences … impeccably formulated in some language or other, there can be no question of sorting them into those that are true and those that are false; for the question of truth and falsehood does not turn only on what a sentence *is*, nor yet on what it *means*, but on, speaking very broadly, the circumstances in which it is uttered' (Austin 1962: 110-11, his emphases), and is held by many who identify as 'contextualists', that is, who take it that components of the truth-conditional content of an utterance come from extra-linguistic context.

4. Conclusion: pragmatics, thoughts and truth-conditional semantics

The pragmatics-semantics interface, as discussed in this chapter, is the point of contact of two cognitive systems, the pragmatics system, or ostensive stimulus processor, (which is 'modular' in Sperber's sense of being an evolved special-purpose mechanism attuned to the regularities of a particular input domain) and the language processor (which is modular in both Fodor's and Sperber's senses). The 'semantic representations' that are the output of the language module provide the pragmatics system with key evidence of the speaker's intended content, evidence which places strong constraints on the interpretive hypotheses this system infers. As argued in section 3, it is very unlikely that these representations are fully propositional, nor is there any reason to think they should be, since it is the role of the pragmatics system, rather than the language system, to recover the (propositional) thoughts the speaker is trying to communicate.

On this basis, I have suggested that the domain of a truth-conditional semantics, a semantics whose primary goal is to explicate the relation between representations and the world which they represent, is thoughts (or sentences of 'Mentalese'). So it is the output of pragmatics, explicatures and implicatures, rather than the linguistic semantic input (sentence meanings), that falls within the domain of a truth-conditional semantics. The 'semantic representation' of a sentence is simply a translation from one kind of representation (lexical-syntactic) into another (a conceptual schema or template, with an array of open slots). Only once it has been pragmatically completed and enriched does it constitute a propositional (hence truth-evaluable) representation which is susceptible of a 'real' (= truth-conditional) semantics, that is, a semantics that matches representations

with states of the world and thereby captures the 'aboutness' of our thoughts (and, derivatively, of our utterances).

Plainly, this kind of semantics does not interface with pragmatics (a system for interpreting communicative behaviour) but exists entirely independently (and 'first'). Although we may occasionally reflect on one of our thoughts, perhaps recontextualise it and infer new implications from it, still we do not interpret it in the sense of figuring out its (intended) content. As Fodor (2001, 14) puts it: '… whereas the content of a sentence may be inexplicit with respect to the content of the thought it expresses, a thought can't be inexplicit with respect to its own content; there can't be more – or less – to a thought than there is to its content because a thought just *is* its content.' It is thought rather than language that has semantic (propositional, truth-conditional) content in the first instance. We can talk, derivatively, of the propositional content of an *utterance* because what we express with our utterances are thoughts, while *sentence* meanings are simply a means by which we can get our interlocutors on track towards grasping those thoughts.

The history of truth-conditional semantics (as a theory of natural language semantics) is replete with clever strategies for avoiding or side-lining an array of problems which are all, essentially, matters for pragmatics: ambiguity, vagueness, indexicality, and incompleteness. The approach has also had to simply leave out of its account the many linguistic expressions that do not fit into the truth-conditional mould, e.g. discourse connectives (e.g. 'however', 'anyway', 'moreover', 'well'), various attitudinal and illocutionary particles, expressives and interjections (e.g. 'alas', 'hey', 'ouch', 'ugh'), non-canonical sentence structures (such as clefts, e.g. 'It was John who paid the price'). Each of these expressions encodes a meaning but that meaning is arguably some kind of

constraint on how pragmatic inferencing is to proceed and does not contribute to truth-conditional content.[18]

Once we recognise the distinction between a semantics for linguistic expressions (words, phrases, sentences) and a semantics for thoughts (sentences of Mentalese), the difference between the tasks involved in the two enterprises becomes clear. On the one hand, linguistic semantics must address a range of quite distinct 'meaning' phenomena: (a) the polysemy of ordinary 'conceptual' words like 'school', 'cold', 'open'; (b) pronouns, demonstratives and many other words with an indexical component (e.g. 'local', 'national', 'near', 'distant'); (c) function words like quantifiers, determiners and logical connectives, and the semantic-structural constraints they can impose on a sentence; (d) discourse connectives, attitudinal particles and other words with a 'procedural' (pragmatically-oriented) meaning. On the other hand, a semantics of thoughts (propositional contents) need not concern itself with polysemy, or indexicality, or incomplete or non-canonical sentence structures, or with those communicative devices, like discourse connectives, whose function is to constrain pragmatic interpretive processes (and so, arguably, do not occur in the language of thought). Perhaps, then, truth-conditional semantics, as applied to thoughts, can proceed pretty much as was originally envisaged by the ideal language philosophers, when they tried to carry it over from logical languages to natural languages.

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[18] For an updated and more nuanced account of the various kinds of encoded procedural meaning, see Wilson (2011, this volume).

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