

## Default Semantics

K. M. Jaszczolt

Forthcoming in: B. Heine and H. Narrog (eds). *The Oxford Handbook of Linguistic Analysis*. Oxford: Oxford University Press.

### *Abstract:*

Default Semantics (DS, Jaszczolt, e. g. 2005, forthcoming c) offers a model of discourse interpretation which can be classified as neo-Gricean and contextualist. It is founded on the recognition of the Model Speaker's intention by the Model Addressee and applies the tool of truth conditions to the conceptual representation of utterances. It goes significantly beyond other Gricean approaches in construing the object of analysis as the primary, salient meaning that is independent of the syntactic constraint and thereby need not constitute a development of the logical form of the sentence. Such primary meanings are orthogonal to the explicit/implicit distinction. DS identifies sources of information about meaning and the types of processes that interact to produce a representation of utterance meaning called merger representation  $\Sigma$ . The interaction obeys the principles of pragmatic compositionality and allows for formalization in the amended and extended language of Discourse Representation Theory, applied to the 'pragmatics-rich' results of the merger. The article discusses the principles of the new revised version of DS and presents two examples of the application of the theory: to definite descriptions and to temporal expressions with future, present and past-time reference. It ends with pointing out the advantages of the model over other post-Gricean accounts.

### **1. Default Semantics and Contextualism**

Since the rise of radical pragmatics in the late 1970's, semantics has begun to grow to include not only the study of the meaning of the *sentence*, but also those aspects of meaning intended by the author (speaker, writer) of this sentence which transform sentence meaning into the *speaker's intended, explicit meaning, or what is said*. To

mention a few landmarks, Grice (1978) observed that pragmatic processes of disambiguation and reference assignment to indexical expressions sometimes contribute to what is said and therefore to the semantic representation of the sentence, allowing for an analysis of the proposition in truth-conditional terms. Kempson (1975, 1979) and Atlas (1977, 1979) proposed that semantic ambiguity of negation in English is better conceptualized as semantic underdetermination, where the logical form underspecified as to the scope of the negation operator is further enriched through pragmatic inference. This blurring of the boundary between semantics and pragmatics opened up an opportunity to reconsider the object of study of truth-conditional analysis. As a result, truth conditions became applied to a representation of *utterance meaning* which corresponds to the logical form of the sentence that can be enriched, or, to use a more general term, further *developed* (Sperber and Wilson 1986, 1995; Carston 1988, 2002) or *modulated* (Recanati 2004, 2005) by some pragmatic additions such as the result of pragmatic inference from the context, and, on some accounts, non-inferential, automatically added pragmatic defaults from salient presumed scenarios. As a result, some of the meanings which Grice classified as implicit became reallocated to the explicit, truth-conditional content of utterances. This view belongs to the general orientation called *contextualism* (Preyer and Peter 2005). On its strong version, the propositional, truth-evaluable level of meaning is always subjected to such pragmatic embellishments and these embellishments are not dictated by the syntax or lexicon. According to weaker versions, such interaction of semantic and pragmatic output is not omnipresent but merely possible. While the contextualist orientation is not the only currently pursued construal of the semantics/pragmatics boundary, with minimalist semantics and various hybrid models making their way in (see Jaszczolt forthcoming a, b for an overview), it is arguably a successful way of representing Gricean, intended meanings, with an opportunity to provide a formal model of utterance meaning thanks to appropriating the tool of truth conditions on the ‘pragmaticky’ side of the divide.

Default Semantics (Jaszczolt, e.g. 2005; henceforth DS) sits comfortably in the contextualist camp and in its radical flank, but also goes significantly beyond some of its assumptions. Its objective is to model utterance meaning as intended by the Model

Speaker and recovered by the Model Hearer.<sup>1</sup> The constructs of model interlocutors are adopted in recognition of the view shared by Grice and the neo-Griceans that a theory of meaning should focus on general mechanisms that underlie the composition of meaning in conversation, including those mechanisms that make use of conventions, heuristics pertaining to rational human behaviour, which explain shortcuts that addressees take through laborious inferential process of meaning recovery. These shortcuts are facilitated by standard, assumed scenarios and assumptions about human mental processes. In short, where context and inference need not be employed, they do not figure in the construction of meaning. Where DS goes beyond contextualism is its understanding of the interaction between the logical form of the uttered sentence and the kind of meaning that the theory of meaning has to represent. Unlike other contextualist accounts, it does not recognize the level of meaning at which the logical form is pragmatically developed/modulated as a real, interesting, and cognitively justified construct. To do so would be to assume that syntax plays a privileged role among various carriers of information and that the syntax/pragmatics interaction is confined to pragmatic additions, embellishments, or ‘developments’ of the output of syntactic processing. If semantic theory is to model intended meaning understood as the most salient information conveyed by the Model Speaker, there does not seem to be any reason to impose this constraint. While pragmatic processing may develop the logical form in many cases, there is no reason to impose this requirement on *all* cases of communication. In fact, there is overwhelming empirical evidence that to do so is a mistake on the part of contextualists.

## **2. Primary Meaning without the Syntactic Constraint**

Grice proposed a fairly clear-cut distinction between what is said as the truth-conditional aspect of utterance meaning (his  $\text{meaning}_{\text{nn}}$ ) on the one hand, and a battery of implicatures on the other. To repeat, what is said was identified with what

---

<sup>1</sup> The question ‘whose meaning’ a theory of discourse meaning should model is subject to ongoing discussions which frequently result in conflicting interpretations of Grice’s Cooperative Principle, allowing it a normative or intensional, speaker-oriented interpretation (see Saul 2002 and Davis 1998, 2007 respectively). Post-Gricean approaches select the speaker’s or the addressee’s perspective (see Levinson 2000 and Sperber and Wilson 1995 respectively, with the proviso that Levinson’s theory can also be read as normative). DS adopts the normative perspective for modelling utterance meaning, in the sense of behavioural norms pertaining to rational communicative behaviour. See Jaszczolt 2005.

was explicitly uttered, allowing also for some minimal help from pragmatics in establishing the propositional content in the form of reference assignment to indexical expressions and disambiguation. However, it can be easily observed that speakers don't always communicate their main, most salient messages through what is explicitly uttered. They also communicate them through what is implicated. In recent years Grice's what is said has been heavily criticized as too restrictive in its requirement that *saying* something must entail that the speaker *means* it and as a result as leading to problems with nonliteral use such as metaphor. If the speaker doesn't 'say' but, as Grice suggests, merely 'makes as if to say' that Tom is a slimy snake, then how can an implicature be produced? Implicatures are the result of saying something, not of 'making as if to say'. It is clear that the concept of saying should be relaxed in order to dispose of the awkward solution of making as if to say.

Although metaphor has now been revindicated as explicit rather than implicit content (Carston 2002), this takes us only part-way. If what is said can contain shifts from standard concepts such as SNAKE to newly constructed concepts fit for the particular context, then why can't it contain other meanings which are equally basic as intended content of the speaker's utterance? Why, for example, when a mother replies as in the exchange (1) below, what is said is to be represented as A rather than as B?

- (1) Child: Can I go punting?  
 Mother: You are too small.

- (A) The child is too small to go punting.  
 (B) The child can't go punting.

Similarly, in the celebrated example adapted from Bach (1994), the mother's response seems to primarily convey (B<sub>1</sub>), (B<sub>2</sub>), or a similar comforting statement. Contextualists, however, represent it as (A).

- (2) Situation: A little boy cuts his finger and cries.  
 Mother: You are not going to die.

- (A) The boy is not going to die from the cut.  
 (B<sub>1</sub>) There is nothing to worry about.

(B<sub>2</sub>) It's not a big deal.

DS takes as its object of semantic representation the primary, salient, intended meanings and hence allows for the B interpretations to be modelled. It is well documented that interlocutors frequently communicate their main intended content through a proposition which is not syntactically restricted in the way A interpretations are. In other words, the representation of the primary meaning need not be isomorphic with the representation of the uttered sentence. Further, it need not be isomorphic with any development of that syntactic form and hence need not constitute an enrichment of modulation of the proposition expressed in the sentence – if, indeed, the sentence happens to express a full proposition. Instead, it is quite common to convey the main message through an implicature.

Now, according to the definition widely adopted in contextualism, implicatures have semantic representations which are syntactically independent of the logical form of the uttered sentence. While the criteria by which the explicit and the implicit content of the speaker's utterance are a contentious matter (see Carston 1988, 1998; Recanati 1989, 2004), there is widespread agreement that embellishments of the logical form of the sentence guarantee that we are talking about the explicit content. On the other hand, a proposition with an independent logical form – independent in virtue of entailment, or a psychological criterion of functioning as a separate premise in reasoning, or finally in virtue of being a wastebasket of communicated thoughts which do not qualify as *the* explicit content – is always an implicature. In this way, Grice's pool of implicata is reduced there to only those messages which do not develop the syntactic structure of the uttered sentence. In DS, we see no reason for this classification. While it is indeed sometimes the case that the main communicated message corresponds to such an enriched proposition, it is also frequently the case that the main communicated message corresponds to the bare sentence or to an altogether different sentence as in the B cases above. In DS, the syntactic constraint of post-Gricean contextualism is rejected. Instead, we argue that the kind of meaning that is modelled in the theory of meaning is the *primary meaning*. The primary meaning is the main message intended by the Model Speaker and recovered by the Model Addressee and it becomes the primary object of semantic analysis independently of its relation to the syntactic form of the uttered sentence. This meaning is construed on contextualist principles. We have a truth-conditional analysis

of the representation that mixes semantic and pragmatic sources of information. In this construal we are merely taking one step beyond the post-Gricean contextualist approaches: we retain the Gricean ideology of intension-based meaning<sub>nn</sub> and reject the syntactic constraint on its content. There is ample experimental evidence that the primary meaning (or: main meaning, explicit meaning, what is said, or whatever intuitive labels we want to assign to it) frequently corresponds to implicatures (Nicolle and Clark 1999; Pitts 2005; Sysoeva and Jaszczolt 2007 and forthcoming). The assumption followed in DS is that the object of study of a theory of meaning should reflect this fact of conversation and give a representation, and also a formal account, of precisely this intended, intuitive, most salient and most important message.

### 3. Merger Representation and its Contributing Sources

In DS, primary meanings are modelled as the so-called *merger representations*. The name reflects the important tenet of the theory that all sources of information about meaning provide constituent ingredients for the final representation. The outputs of these sources merge and all the outputs are treated on an equal footing, without giving priority to any of the sources. By the same token, the logical form of the sentence is not given priority over any other information. The syntactic constraint discussed in Section 2 is abandoned. It is assumed that merger representations have the status of mental representations. They have a compositional structure: they are proposition-like, truth-conditionally evaluable constructs, integrating information coming from various sources that interacts according to the principles established by the intentional character of discourse. In the revised version of DS, there are five sources of such information:

- (i) world knowledge (WK);
- (ii) world meaning and sentence structure (WS)
- (iii) situation of discourse (SD)
- (iv) properties of the human inferential system (IS)
- (v) stereotypes and presumptions about society and culture (SC).<sup>2</sup>

---

<sup>2</sup> The revised version of DS was first discussed in Jaszczolt forthcoming c. This summary makes use of some ideas introduced there.

The source WK pertains to information about the laws governing the physical world, such as that leading to the interpretation of *and* as *and as a result* in (3b).

- (3a) The temperature fell below -10 degrees Celsius and the lake froze.
- (3b) The temperature fell below -10 degrees Celsius and as a result the lake froze.

WS stands for information from the lexicon and syntax. SD pertains to the context provided by the situation in which the utterance is issued, including the participants, location, time, and co-text. The source IS stands for the structure and operations of the human brain that are responsible for the emergence of standard, default interpretations of certain types of expressions, unless the addressee has evidence that this standard interpretation is not intended. IS is responsible, for example, for the default referential as opposed to attributive reading of definite descriptions as in (4b).

- (4a) The author of *Cloud Atlas* has breathtaking sensitivity and imagination.
- (4b) David Mitchell has breathtaking sensitivity and imagination.

It is also responsible for the default *de re*, as opposed to *de dicto*, interpretation of intensional constructions such as belief reports (See Jaszczolt 2005, 2007a). Finally, SC is a source of information which is not specific to the situation of discourse but instead is shared across different scenarios in a socio-cultural and linguistic community. It is responsible, for example, for the interpretation of (5a) as (5b).

- (5a) A Botticelli was stolen from the Uffizi last week.
- (5b) A painting by Botticelli was stolen from the Uffizi Gallery in Florence last week.

The sources are presented in Fig. 1. Merger representation, the result of the interaction of information they provide, is referred to as  $\Sigma$  in that this symbol reflects the *summation* of content coming from WK, WS, SD, IS and SC that takes place at this level of representation.

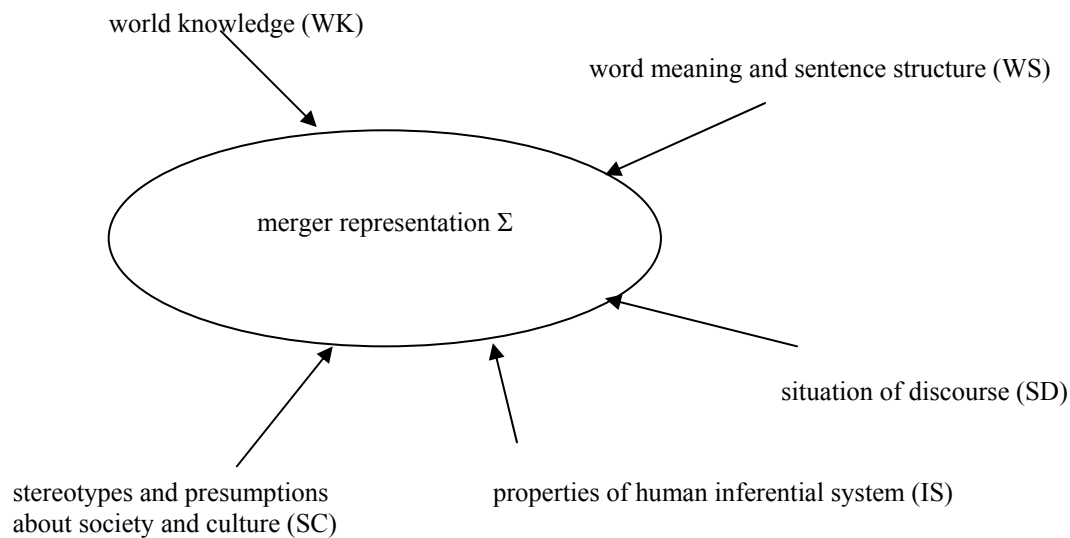


Fig. 1: Sources of information contributing to a merger representation  $\Sigma$

To sum up,  $\Sigma$  is the result of the interaction of information about the primary meaning as intended by the Model Speaker and recovered by the Model Addressee – an interaction that draws on the five sources of meaning distinguished here as (i)-(v) and presented in Fig. 1. All sources of meaning operate on an equal footing. The primary meaning obtains the representation that is provided solely by a semantic composition that proceeds according to the heuristics of rational conversational behaviour, modelled on methodologically adequate and testable principles of economy of agent input and maximization of obtained information (see e.g. Horn 1988; Levinson 1987, 2000; Hawkins 2004).

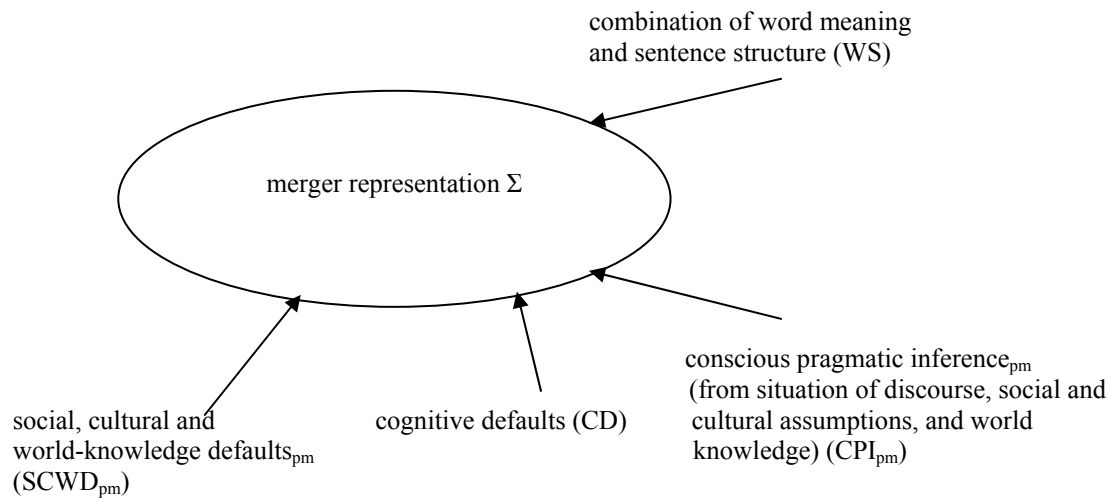
In *Default Semantics* (Jaszczolt 2005), I identified four sources of information about meaning that make up merger representations: word meaning and sentence structure; conscious pragmatic inference; social and cultural defaults; and cognitive defaults. The difference between these sources and the revised list of sources (i)-(v), presented also in Fig. 1, pertains to the criteria by which they are individuated. In Fig. 1, I used qualitative labels such as culture, society, physical laws, or context. In the 2005 version, I used processing criteria. I tried to demonstrate how the type of processing is linked to the particular source. As a result, the types of information were matched with the types of processing in order to produce the four categories of the 2005 version of DS. For example, the fact that shared knowledge of Italian Renaissance painting, such as that of Botticelli in example (5a), may activate

automatic and subconscious interpretation in (5b) explains the separation of the category labelled as ‘social and cultural defaults’ from the category ‘conscious pragmatic inference’. On the other hand, the referential identification of ‘Larry’ in (6) as Larry Horn is more likely to be the result of a conscious inferential process.

(6) Larry’s account of the history of negation is truly magnificent.

In the revised version, sources are differentiated from processing mechanisms. The model of sources of information can be mapped onto *types of processes* that produce both the merger representation  $\Sigma$  of the primary meaning and the additional (secondary) meanings. The labels ‘primary meaning’(pm) and ‘secondary meaning’ (sm) are preferred to the traditional ‘what is said’ and ‘what is implicated’ in that, to repeat, the primary meaning can be a Gricean implicature – the most salient intended meaning need not correspond to the uttered sentence. These labels are also preferred to the terms ‘Stage I’ and ‘Stage II’ used in the 2005 version in that the term ‘stages’ is conducive to interpreting the model in terms of the temporal sequence of processing, whereas there is empirical evidence that the processing of primary and secondary meanings does not have to proceed in this particular order. Processing of some secondary meanings may be necessary en route to recovering the primary message. The revised *processing model* of utterance interpretation in DS is given in Fig. 2.

*Primary meaning:*



*Secondary meanings:*

- Social, cultural and world-knowledge defaults<sub>sm</sub> (SCWD<sub>sm</sub>)
- conscious pragmatic inference<sub>sm</sub> (CPI<sub>sm</sub>)

Fig. 2: Utterance interpretation according to the *processing model* of the revised version of Default Semantics

The mapping between the ‘sources’ model and the ‘processing’ model is as follows. World knowledge (WK) and stereotypes and presumptions about society and culture (SC) can lead to automatic, default interpretations of SCWD kind, as in example (5) above, but also to consciously, inferentially reached ones (CPI), as in (6). Word meaning and sentence structure (WS) constitute both a source and a type of processing, according to the modularity assumption discussed in the following section. They simply produce the logical form of the uttered sentence. Situation of discourse (SD) triggers CPI. Properties of human inferential system (IS) result in a kind of default interpretations that pertain to the structure and operations of the brain, and hence there is a one-to-one correspondence between source IS and a process that produces CD. For building merger representations DS makes use of the processing

model and it indexes the components of  $\Sigma$  with a subscript standing for the type of processing, as is exemplified in the selected applications in Section 7.

Next, as is evident from the model in Fig. 2, social and cultural stereotypes can play a part in the construction of the primary meaning as well as the secondary meanings. Similarly, context-driven conscious inferences can contribute both to the primary meaning and the secondary meanings. They are active in the recovery of additional meanings intended by the Model Speaker and recovered by the Model Addressee.

The question of what counts as effortful processing (CPI) vis-à-vis automatic utilization of knowledge of culture and society (SCWD) is a difficult and currently unresolved one. While it is widely accepted that utterance interpretation makes use of automatic, default interpretations, which are assumed and which figure as salient and strong interpretative probabilities unless the context dictates otherwise, it is not possible to tell where the boundary lies. In fact, it may never be possible to make reliable generalizations on this matter, due to the interpersonal differences in assumed common ground. While ‘Botticelli’ may trigger for most people the interpretation in (5b) by means of SCWD, this default status cannot be universally assumed for all interlocutors. Substituting names of lesser known artists may give even less default-oriented results. Example (7) gives the flavour of the extent of the problem. While in the scenario of an interview with a film star it can be assumed that ‘Leonardo’ refers to a young but widely known actor Leonardo DiCaprio, assuming this as a cultural default for the interviewer would be too strong. In fact, assuming it as a salient referent reached as a result of conscious pragmatic inference is proven to be equally wrong. The scriptwriter obtains the humorous effect through a mismatch of the very salient referent intended by the interviewed young actress (B) and the one which is recovered by the interviewer (A) unexpectedly for the viewers of the film. The assumption that the reference assignment as Leonardo DiCaprio is a result of SCWD rather than CPI makes the situation even more striking.

- (7)     A:        So, is this your first film?  
           B:        No, it’s my twenty second.  
           A:        Any favourites among the twenty two?  
           B:        Working with Leonardo.  
           A:        da Vinci?  
           B:        DiCaprio.

A: Of course. And is he your favourite Italian director?  
(Richard Curtis, *Notting Hill*, 1999)

The problem is this. While in the analysis of a particular example we may not be able to univocally allocate the interpretation to SCWD or CPI, there is a clear need to distinguish the two kinds of processes: the conscious, inferential one and the automatic, subdoxastic one.<sup>3</sup> DS finds a solution to this uncertainty in that merger representations are representations produced by the *Model Addressee* and contain the meanings intended by the *Model Speaker*. On this level of theory construction, it is quite plausible to make assumptions about the sources. Even if they do not correspond to those utilized by actual interlocutors on every occasion, the adequacy of the framework is not compromised. It also has to be pointed out that any model of utterance interpretation which, like DS, Levinson's (2000) presumptive meanings, or Recanati's (2002, 2004) truth-conditional pragmatics retains the common intuition that the primary meaning is built *both* out of automatic, associative, unreflective components and conscious, inferential ones, has a significant advantage over restrictive and highly implausible accounts on which all such components of primary meaning are inferential or all are associative. Allowing for some differences among the accounts compared here that pertain to the acceptance or rejection of the syntactic constraint, the argument goes as follows. If, like Carston (e. g. 2002, 2007) one argues for only inferential enrichments, some of those 'inferences' will have to be dubbed subconscious and spontaneous. If, on the other hand, one opts for only associative enrichments like Recanati (e. g. 2004, 2007), one has to qualify this view by saying that some of them may be open to retrospection and be conscious in this sense. A common-sense 'inference plus defaults' account of DS is clearly superior.

#### 4. Compositionality of Primary Meanings

The next issue to be addressed is the compositionality of  $\Sigma$ . It is well known that the requirement of compositionality of meaning is the stumbling block of all extant semantic theories. It has been one of the greatest challenges of semantic theory to provide a compositional account of such intensional contexts as propositional attitude reports, modal expressions, and constructions with temporal adverbials. However, as

---

<sup>3</sup> I have surveyed various theories of meaning that make use of default interpretations in several other works. See for example Jaszczolt 2006 for a comprehensive encyclopaedic account.

was extensively argued in the recent contextualist literature (Recanati 2004; Jaszczolt 2005), compositionality need not be imposed on the level of the output of syntax alone. While it is arguably the case that a theory of meaning which is not compositional in some sense is inconceivable and the methodological requirement of compositionality has to be present on one level or the other, compositionality need not be as strict as the traditional truth-conditional semantics requires. For Schiffer (e. g. 1991, 1994, 2003), compositional semantics is not a *sine qua non* condition; composition of meaning may simply reflect compositional reality. In other words, meaning supervenes on the structure of the world. For Recanati, compositionality belongs to the level of truth-conditional pragmatics – the level of enriched, modulated propositions. DS follows this approach and places the methodological requirement of compositionality on the representation of *utterance* meaning rather than *sentence* meaning. Recanati (2004: 138) calls it the Pragmatic Composition view and an ‘interactionist’, ‘Gestaltist’ approach to compositionality (*ibid.*: 132). But a terminological clarification is necessary here. While for Recanati this view is properly called *truth-conditional pragmatics*, DS retains the name *truth-conditional semantics*, allowing for semantics to be construed in the contextualist way – or, even, a radical contextualist way since the syntactic constraint is rejected there. Composition of meaning is not dictated by the syntactic form of the uttered sentence but rather by the intended meaning of the speaker. Compositionality is predicated of merger representations – the  $\Sigma$ s of primary meanings of utterances, as intended by Model Speakers and recovered by Model Addressees. When the task of semantics is to produce a merger representation, the semantic composition is necessarily largely ‘pragmatically’: semantic composition means composing merger representations  $\Sigma$ .

Now, like its parent theory, Discourse Representation Theory (henceforth DRT, e. g. Kamp and Reyle 1993) on which DS is loosely modelled, DS regards formalization as subordinate to the overall goal of constructing representations of discourse. These representations are assumed to be cognitively real and reflect mental processing of natural language utterances (Hamm *et al.* 2006). It is also in agreement with Jackendoff (2002; Culicover and Jackendoff 2005), propounding that *conceptual semantics* is a superordinate objective: it makes use of formal methods but is not constrained by their limitations. Pragmatic compositionality also shares the overall orientation with some new developments in the philosophy of language where the

problem of substitutivity in intensional contexts is progressively more removed from the problem of substitution of coreferential expressions in sentences. For example, Pelczar (2004, 2007) proposes that the fact that a speaker may hold a certain belief about water, say, that it is in short supply, but fail to hold a belief that corresponds to ‘H<sub>2</sub>O is in short supply’ should not be approached as a problem with the properties of the objects of belief but as a problem with the *attitude of believing* itself. This means that rather than complicating the theory of the objects of thought à la Kaplan, Perry or Schiffer, he proposes that there is one single object of thought, referred to as ‘water’, ‘H<sub>2</sub>O’, and some other contextually salient labels, but belief relation itself is represented as a context-dependent, indexical predicate whose content depends on the features of the context such as the topic of conversation, conceptual background of the interlocutors, or the discursive history (co-text). The problem with compositionality in belief reports is therefore solved by appeal to the representation of context which makes the belief itself, and the belief expression, indexical. Pelczar calls this view *formal pragmatics* in that literal content is allowed to depend on contextual factors, including norms and maxims of conversation. He adds that this construal need not violate the principle of compositionality: in a compositional theory of meaning, expressions which enter into this composition have themselves contextually determined contents (see Pelczar 2004: 71).<sup>4</sup> DS goes a little further. In liberating merger representations from the syntactic constraint, it brings truth-conditional methods closer to cognitive, conceptual analyses, arguably to the mutual benefit of conceptual and truth-conditional aspects of the analysis of meaning.

To sum up, while compositionality is a necessary prerequisite for any theory of meaning and need not be questioned, principally because one has nothing better to hold on to instead, compositionality should not be seen as a methodological requirement on the syntax and semantics of *sentences*. Such a narrow view of compositionality has been proven to complicate formal methods in order to fit natural language into the mould of formal languages of deductive logic. Instead, DS agrees with Jackendoff (2002: 293) that there is no ‘strictly linguistic meaning’ and that constructing mental representations of discourse is the fundamental objective of a theory of meaning. This more pragmatic approach to compositionality permeates some recent accounts which are engendered by the disillusionment with the strict

---

<sup>4</sup> See also Predelli 2005a, b on the standard truth-conditional semantics being sufficiently ‘contextualist’.

methodological requirements of post-Montagovian theories. Dowty (2007), for example, suggests that compositionality is not a ‘yes-no question’ but rather a ‘how-question’ and belongs in the empirical domain of facts:

‘I propose that we let the term NATURAL LANGUAGE COMPOSITIONALITY refer to *whatever strategies and principles we discover that natural languages actually do employ to derive the meanings of sentences, on the basis of whatever aspects of syntax and whatever additional information (if any) research shows that they do in fact depend on*. Since we do not know what all those are, we do not at this point know what “natural language compositionality” is really like; it is our goal to figure that out by linguistic investigation. Under this revised terminology, there can be no such things as “counterexamples to compositionality”, but there will surely be counterexamples to many particular hypotheses we contemplate as to the form that it takes.’ Dowty (2007: 27).

DS endorses this view. Compositionality retains the status of the methodological requirement in that it is assumed that it has to be *discovered* rather than to be *shown whether* it is the case. The main question becomes, what principles are responsible for the compositional, and hence calculable in the sense of ‘predictable’, character of the *entire system* of human communication? In other words, while non-compositional theory of meaning is not considered (*pace* Schiffer’s 1991, 1994, 2003 compositional supervenience but non-compositional semantics), ‘kicking compositionality up’, so to speak, from the level of pure syntax to a multidimensional, merged, interactive, representation of discourse meaning is offered as a plausible option.<sup>5</sup> This level is the level of a merger representation  $\Sigma$  and therefore compositionality is predicated of the result of the interaction of information provided in the processes summarized in Fig. 2 above. It is now a task for future experimental projects to pave the way towards capturing this interaction of sources more formally as an algorithm for merging the outputs.

---

<sup>5</sup> Not only need compositionality not be constrained to sentences, it need not even be constrained to approaches espousing truth conditions and reference. For a deflationist version of compositionality see Horwich 2005.

## 5. Incremental Processing

Another pertinent and as yet unresolved problem in Gricean pragmatics concerns the global vs. local character of the additions to the logical form of the uttered sentence. On Grice's (1978) original proposal, what is said consisted of the truth-conditional component of meaning<sub>nn</sub>. Reference assignment and disambiguation operated within the boundaries set by syntax. Indexicals provided syntactic slots for referents. Lexical and syntactic ambiguity was a self-evident output of the grammatical analysis and hence disambiguation was also internally motivated by the system. Next, implicatures of various kinds were constructed on the basis of the inference from the proposition that corresponded to the sentence, disambiguated and referentially pinned down as required. All implicatures were dependent on the meaning of the uttered sentence which was processed first. In other words, they were *post-propositional*. Even the enrichment of sentential connectives such as that from *and* to *and therefore* or *and then* in (8b), for which the sub-maxim of manner, 'be orderly', was said to be responsible, was construed as such a global, post-propositional process of implicature recovery.

(8a) Mary finished marking the scripts and went to the cinema.

(8b) Mary finished marking the scripts and then went to the cinema.

However, with the growing emphasis on the psychology of utterance processing in post-Gricean pragmatics, the global character of such additions began to be questioned. The most radical form of this reaction is arguably Levinson's (2000) theory of Generalized Conversational Implicature (henceforth GCI) and his so-called presumptive meanings. While Levinson remains close to the spirit of Grice in emphasizing the context-free character of some enrichments, and thereby retaining the contentious category of generalized implicature, he also emphasizes the incremental character of discourse processing and proposes local enrichments, triggered by parts of the sentence such as phrases, words, and sometimes morphemes. (9)-(11) below exemplify Levinson's local GCIs, where the symbol '+>' stands for 'conversationally implicates'.

(9) Some of the boys came. +> 'not all'

(10) Possibly, there's life on Mars. +> 'not certainly'.

(11) If John comes, I'll go. +> 'maybe he will, maybe he won't'

(from Levinson 2000: 36-37). These interpretations are explained by the Q-heuristic, 'What isn't said, isn't': where a stronger expression is available but was not used, it can be inferred that using it would lead to falsehood. Examples (9)-(11) allegedly demonstrate that the presumptive meaning arises as soon as the smallest relevant item is processed. In other words, it is not the case that the proposition 'Some of the boys came' leads to the interpretation 'Not all of the boys came', as was the case on Grice's original construal, but rather it is the word 'some' that triggers 'not all'. However, the problem is that the approach seems to be self-defeating: the more we try to obey the principles of rational communicative behaviour, the more we contradict them. Levinson argues that it is the 'bottleneck of communication' that makes us say less and infer more. Articulation is costly and slow, processing is cheap and fast. Addressees tend to go beyond the words to the standard, salient, default interpretation at the first encountered opportunity. But the sooner this 'defaulting' takes place, the greater the risk that it is incorrect and has to be revoked. In other words, if, say, 'some' is resolved as 'some but not all' as soon as the word is processed, then all cases that follow the patterns of (9a) or (9b) below will necessitate the cancellation of the default interpretation.

(9a) Some of the boys came. In fact, all of them did.

(9b) Some, and in fact all, of the boys came.

It goes without saying that default interpretations are defeasible. But their cancellation has to be restricted to cases where it can be plausibly predicted to be happening. In short, making defaults too local makes them too costly to be true. While the existence of shortcuts in reasoning is not disputed, the exact character and constitution of these shortcuts is still largely unknown. In this section I look at their constitution, and mainly at their length. The characteristics of default interpretations vis-à-vis inferential ones is taken up in Section 6.

Locality is even more pronounced in examples (12)-(15).

(12) bread knife +> knife used for cutting bread

kitchen knife +> knife used for preparing food, e.g. chopping

steel knife +> knife made of steel

- (13) a secretary +> female one  
 (14) a road +> hard-surfaced one  
 (15) I don't like garlic. +> I dislike garlic.  
 [triggered locally by 'don't like', KJ]

(from Levinson 2000: 37-38, adapted). These cases are explained by his I-heuristic, 'What is expressed simply is stereotypically exemplified'. Locality so construed is not without problems. (12) contains three standard compounds, in spite of the orthographic conventions which make them written as separate words, and it is not at all clear that compounds can be subsumed under the category of pragmatic enrichment. And, naturally, if they are not cases of GCI, they do not constitute a suitable argument for locality. Examples (13) and (14) are also problematic. It is a commonly shared intuition that 'secretary' in 'the Prime Minister's secretary' does not default to 'female'. 'Road' is a lexical item that comes with the conceptual content that can be variously construed as a prototype, definition, set of features, depending on the adopted theory of word meaning, and that contains a concept of hard, levelled, driveable or at least walkable surface of some sort. Just as in the case of compounds in (12), it seems that instead of defaulting to 'local' enrichment we have here a simple lexical content of the word 'road' *tout court*. Next, in (15), the *neg*-raising is rather hastily classified as local. It seems at least plausible that the 'dislike' interpretation arises because of the content of the sentence, the state of not being fond of garlic, rather than as a result of the strengthening of 'not like' alone.

In short, the more 'local' the enrichments, the higher the likelihood that they have to be cancelled later on in discourse when more information becomes available. Frequent cancellation is not a satisfactory feature of defaults in that it is costly. So, it seems that one has to opt for a solution that combines the fact of the incremental nature of processing with the fact that cancellation is not welcome. Adopting Grice's original post-propositional, 'global' enrichments would mean that the cost and frequency of cancellations is substantially reduced. But then, developing this line of argument by allowing default interpretations to operate on units even larger than a single proposition, when this is appropriate to construe them in this way, would take us even closer to an adequate model of utterance interpretation. We can conclude that

default interpretations should be construed as operating on a unit that is adequate for the particular case at hand. By ‘adequate’ we mean cognitive, psychological adequacy that can be corroborated by experimental investigations into the characteristics of discourse processing. Pragmatic inference should be construed as similarly flexible.

Default Semantics does not as yet have a satisfactory answer to the question as to how to model the locality of default interpretations. However, it has an interim solution that avoids the pitfalls of radical globalism as well as radical localism. To repeat, the desideratum is this:

*Default and inferential interpretation have to be construed as operating on a unit that is adequate for the case at hand, ranging from a morpheme to the entire discourse.*

We do not as yet have even a descriptive generalization pertaining to this desideratum. Therefore, until evidence is amalgamated and classified, DS proposes to stay close to the Gricean spirit and analyse all default and inferential meanings as if they were interacting with the proposition-like unit given in the uttered sentence. Naturally, sometimes the sentence will correspond to a full proposition, at other times it will not (see Bach 1994, 2004, 2006). This issue, albeit important, will not concern us at the moment. What matters is that DS makes a methodological move to model the meanings that come from the source WS in Figs 1 and 2 globally: word meanings and structure are subjected to semantic composition first, as far as such is available, and then they interact with the remaining aspects of meaning. Psychological reality is as yet a goal to be aspired to. As the interim measure we stay close to the assumption that reflects a more economical, more rational way for the communicators to proceed.

Compared with Grice’s globalism and Levinson’s localism, DS displays another advantage. Cognitive, cultural, social and world-knowledge defaults referred to in DS as CD and SCWD do not pertain to the enrichment of the logical form understood as the output of syntactic processing. Since the syntactic constraint is abandoned, they can also ‘override’ it. In composing utterance meaning, the output of syntactic processing is not pragmatically enriched but instead all the sources of information about meaning are equal contributors to the merger representation  $\Sigma$ , the

representation of the proposition pertaining to the primary meaning.<sup>6</sup> When the interaction among the outputs of different constituent processes is construed in this way, i. e. when they all operate on an equal footing, the question of locality and globality of ‘additions’ to the logical form has to be reformulated as the question of the interaction of WS with the remaining aspects of  $\Sigma$ . It is no longer ‘additions’ that we are talking about but ‘properties of the interaction’. And, since we are far from the complete algorithm for meaning construction, it comes as no surprise that we are far from knowing the properties of WS either. What we have is a model of the end product, so to speak, and a theory of what sources (Fig. 1) and what types of information (Fig. 2) contribute to the merger. This is a big step in itself from the by now traditional view of the ‘enrichment of the logical form’ but there remains a lot to be done both on the front of the psychology of processing and the formalization of the merger.

## 6. Default vs. Inferential Components of $\Sigma$

In Section 3, four types of information about utterance meaning were identified: combination of word meaning and sentence structure (WS), conscious pragmatic inference (CPI), cognitive defaults (CD), and social, cultural and world-knowledge defaults (SCWD). The WS source was discussed in Section 5 in relation to the question of the local vs. global character of the interaction with the other sources that produces the merger representation  $\Sigma$ . The CPI source was introduced in detail in Section 3 where it was emphasized that DS construes pragmatic inference as a conscious process. The pleonastic label ‘conscious inference’ is retained there in order to make this fact clear vis-à-vis other post-Gricean approaches on which ‘inference’ is a more widely construed concept (see Levinson 2000; Recanati 2004, 2007; Carston 2007). Such inference is not necessarily deductive: DS also admits defeasible forms of processing, such as inductive and also abductive reasoning, the so-called default reasoning (Thomason 1997; Jaszczolt 2006). It draws on information available in the situation of discourse, social and cultural assumptions of the interlocutors, as well as

---

<sup>6</sup> DS subscribes to what Bach (2006) calls *propositionalism*, a view that the proper object of study of a theory of meaning is a proposition and that that proposition is recovered from the sentence and the context – in DS in the form of default meanings and pragmatic inference. Bach rejects this view and opts instead for what he calls *radical semantic minimalism* according to which semantics need not concern itself with propositions and need not deliver truth conditions (see also Bach 2004). On different forms of minimalism in semantics see Jaszczolt 2007b.

their knowledge of the physical laws governing the world. Information which is not produced via such conscious inference is thereby non-inferential, automatic. It is also called subconscious, subdoxastic, and sometimes associative (Recanati 2004, 2007). It was observed in Section 3 that, although there is no disagreement in the field concerning the existence of such shortcuts through inference, the actual properties and membership of this category are far from being resolved. As I argued extensively elsewhere (Jaszczolt 2006), although default interpretations are almost universally recognized in accounts of discourse meaning, what various authors mean by ‘default’ differs on at least the following fronts:

[1a] Defaults belong to competence.

vs.

[1b] Defaults belong to performance.

[2a] Defaults are context-independent.

vs.

[2b] Defaults can make use of contextual information.

[3a] Defaults are easily defeasible.

vs.

[3b] Defaults are not normally defeasible.

[4a] Defaults are a result of subdoxastic, automatic process.

vs.

[4b] Defaults can sometimes involve conscious pragmatic inference.

[5a] Defaults are developments of the logical form of the uttered sentence.

vs.

[5b] Defaults need not enrich the logical form of the sentence but may override it.

[6a] Defaults can all be classified as one type of pragmatic process.

vs.

[6b] Defaults come from qualitatively different sources in utterance processing.

There is also disagreement concerning the following properties, to be discussed below:

[7a] Defaults are always based on a complete proposition.

vs.

[7b] Defaults can be ‘local’, ‘sub-propositional’, based on a word or a phrase.

[8a] Defaults necessarily arise quicker than non-default meanings. Hence they can be tested for experimentally by measuring the time of processing of the utterance.

vs.

[8b] Defaults do not necessarily arise quicker than non-default meanings because both types of meaning can be based on conscious, effortful inference. Hence, the existence

of defaults cannot be tested experimentally by measuring the time of processing of the utterance.

Some of these properties are interrelated, some just tend to occur together, and some exclude each other. At the current stage of its development, DS tends to favour the following cluster:

[1a], in that merger representation  $\Sigma$  is construed as a semantic representation;

[2b], in that salient, short-circuited interpretations arise through repeated exposure to scenarios and to information about culture, society and physical world;

[3b], since, as was argued extensively in Section 5, frequent cancellation goes against the economy and thereby rationality of communicative behaviour;

[4a], in virtue of the very nature of what constitutes a default interpretation, as was discussed above;

[5b], following the rejection of the syntactic constraint in DS, discussed in Section 2;

[6b], in that default interpretations are classified in DS as (i) CD, pertaining to the source IS, and (ii) SCWD, where SCWD pertain to two sources: WK and SC (see Figs 1 and 2);

[7a], as a temporary methodological measure, recognizing the reality of [7b], as was argued in Section 5;

and

[8a], logically following [4a] and hence in virtue of the very nature of what constitutes a default interpretation.

This completes the introduction to the principles and desiderata of DS. The following section presents some selected applications of the theory.

## 7. Selected Applications

DS is still a theory in progress. Its origins date back to the early 1990s and to the questioning of the need for the stage of utterance interpretation which pertains to the development of the logical form of the sentence. This question was first expressed in Jaszczolt 1992 and further elaborated in 1999 and called the *Parsimony of Levels (POL) Principle*: levels of senses are not to be multiplied beyond necessity (Jaszczolt 1999: xix). The first applications of the theory were to definite descriptions, proper names, and belief reports and thereby to other non-factive propositional attitude constructions (e. g. Jaszczolt 1997, 1999), followed by a DS-theoretic account of negation and discourse connectives (Lee 2002). Subsequently, DS was used for a wide range of constructions and phenomena that are standardly considered as problematic for semantic theory: presupposition, sentential connectives, number terms, temporality, and modality (see e. g. Jaszczolt 2005), the latter also in a contrastive perspective (Srioutai 2004, 2006; Jaszczolt and Srioutai forthcoming). One of the current projects applies DS-theoretic analysis to a selected class of speech acts in Russian and English, also testing experimentally the validity of the rejection of the syntactic constraint (Sysoeva and Jaszczolt 2007 and forthcoming). Another recent project developed DS-theoretic representations of the future, the present, and the past, demonstrating their cross-linguistic application, and proposed a new concept of merger representation ( $\Sigma'$ ) that replaces the murky concept of event and functions as an object of the propositional operator of temporality. Temporality is analysed there as derivable from the concept of epistemic modality (Jaszczolt forthcoming c). In this section I exemplify the use of the DS-theoretic analysis in two semantic domains: that of (i) definite descriptions and (ii) temporality: the representation of the past, present and future.

### 7.1. Merger Representations for Definite Descriptions

Referring in discourse is performed by means of two categories of expressions: the directly referring (type-referential) ones, and the ones whose referring function is facilitated by the context (the token-referential ones). The first category comprises ordinary proper names, some pronouns, including demonstrative, and demonstrative phrases. Token-referential expressions are normally instantiated by definite

descriptions, i. e. by definite noun phrases that are used to refer to an object (rather than, say, generically). However, definite descriptions do not fit neatly in this classification. As has been well known since Donnellan's seminal paper (1966), they can be used to refer to a particular, interpersonally identifiable individual, i. e. referentially, or they can be used to attribute a certain description to whoever fulfils it, i. e. attributively. Let us imagine a situation in which the speaker points at the cathedral Sagrada Família in Barcelona and utters (16).

(16) The architect of this church was an eccentric.

What the sentence means, after the strictly Gricean filling in of the demonstrative noun phrase with a referent, is that the architect of Sagrada Família was an eccentric. But the actual meaning recovered by the addressee will depend on the referential intention assigned to the speaker. This referential intention can be weaker or stronger and can render the attributive meaning in (16a) or the referential meaning in (16b) respectively.

(16a) The architect of Sagrada Família (whoever he was) was an eccentric.

(16b) Antoni Gaudí was an eccentric.

In DS, the commonly asked question as to whether the referential/attributional distinction is a semantic or a pragmatic one need not be posed in that the radically contextualist orientation of the theory, and the interactive provenance of merger representations, render it meaningless. But the duality of use remains the fact of discourse and  $\Sigma$  has to reflect it. In fact, there is more than duality here when we approach the problem from the perspective of discourse processing. When the addressee is referentially mistaken and believes that it was, say, Simon Guggenheim who designed this cathedral, the 'recovered' reading is as in (16c).

(16c) Simon Guggenheim was an eccentric.

All of these possibilities of reading of (16) have to be captured in merger representations because they all pertain to possible outcomes of the processing. In DS,

it is assumed that the referentially strongest interpretation in (16b) is obtained by means of the interaction of WS with CD: strong referentiality is founded on the strong intentionality of the relevant mental acts and therefore constitutes the default interpretation for referring expressions. This is summarized in the principles of DS called *Degrees of Intentions (DI)* and the *Primary Intention (PI)*, stating respectively that intentions and intentionality allow for various degrees, and that the primary role of intention in communication is to secure the referent of the speaker's utterance (Jaszczolt 1999: xix). In other words, the referential, and referentially accurate, interpretation in (16b) comes out as the default interpretation of the cognitive type (CD), secured by the properties of the human inferential system (IS) in that the intentionality of the mental act that corresponds to this proposition is the strongest, undiluted by the lack of information for identification as in (16a) or by a referential mistake as in (16c). The resulting  $\Sigma$  is given in Fig. 3, where  $x$  stands for the discourse referent and the formulae below for discourse conditions – the dynamic equivalents of the logical forms, construed in the amended and extended language borrowed from DRT. The subscript after the square bracket stands for the type of information that takes part in the interaction producing  $\Sigma$ .

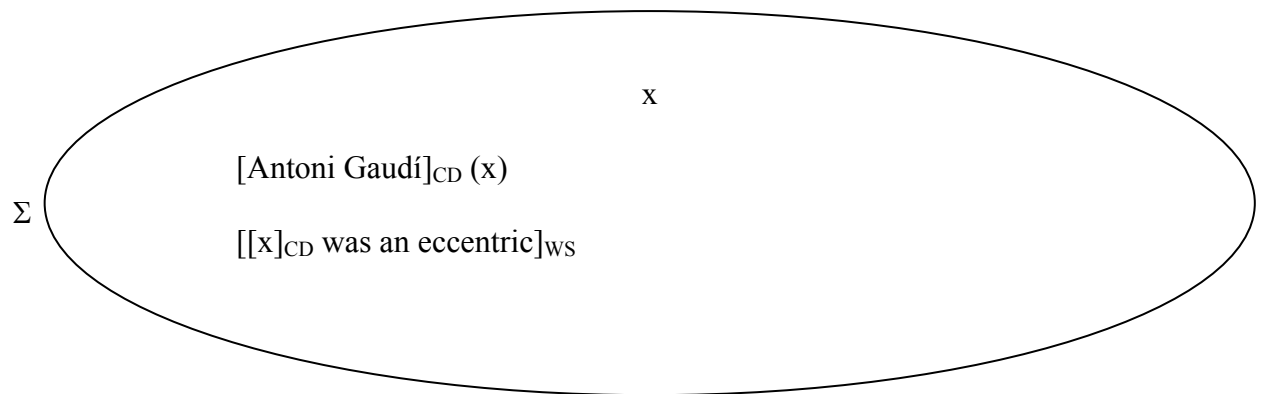


Fig. 3: Merger representation for the default reading of example (16)

The reading with the referential mistake in (16c) comes next in that it exhibits a weaker form of intentionality and thereby a weaker referentiality. This reading owns its reference assignment to pragmatic inference and hence  $CPI_{pm}$  (see Fig. 2), with the disclaimer carried forward from the earlier discussion that the assignment of the inferential or default route is at present somewhat speculative: while the distinction between inferential and automatic routes can hardly be contested, the allocation of particular cases to the categories has not as yet acquired a descriptive generalization. This reading is represented in Fig. 4.

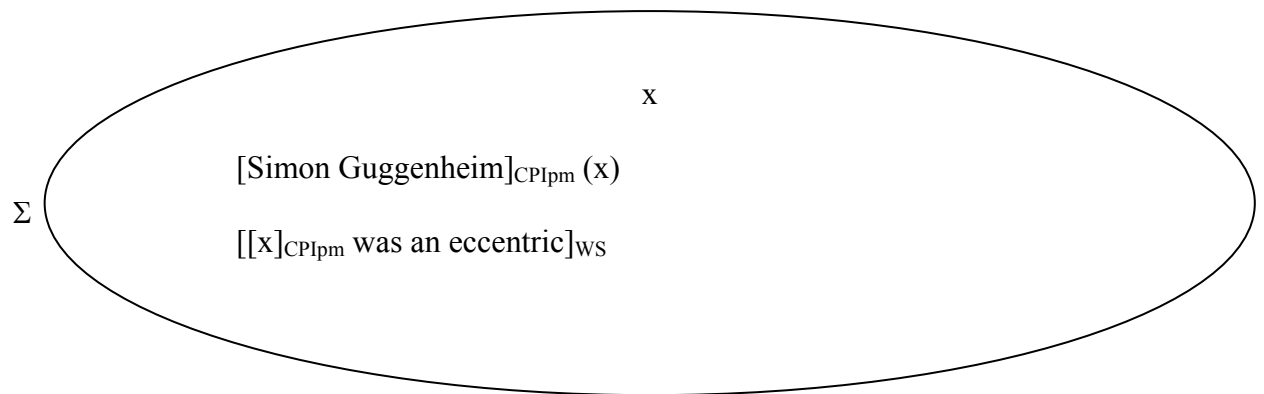


Fig. 4: Merger representation for the referential mistake reading of example (16)

Finally, the attributive reading in (16a) pertains to the weakest referential intention and the weakest intentionality. It is represented in Fig. 5. As in the case of the referential mistake, the merger representation is obtained through the interaction of the inferential ( $CPI_{pm}$ ) identification of the referent and the WS. In the case of this reading, we also have to represent the composition of the phrase ‘the architect of this church’. ‘This church’ is a demonstrative phrase in our example and hence a directly referring expression (type-referential). In the semantic representation we substitute the salient, correct referent, signalled as the proper name *Sagrada Família*, which is obtained as a cognitive default (CD). The definite description ‘the architect of *Sagrada Família*’ is then composed with the help of WS (syntactic composition) and pragmatic inference ( $CPI_{pm}$ ) in that this is the attributive, and hence non-referential, non-standard, inferentially obtained interpretation where referential intention with which the utterance was made and the corresponding intentionality of the mental act are both weaker as compared with the default case of (16b) and the mistaken referential (16c).

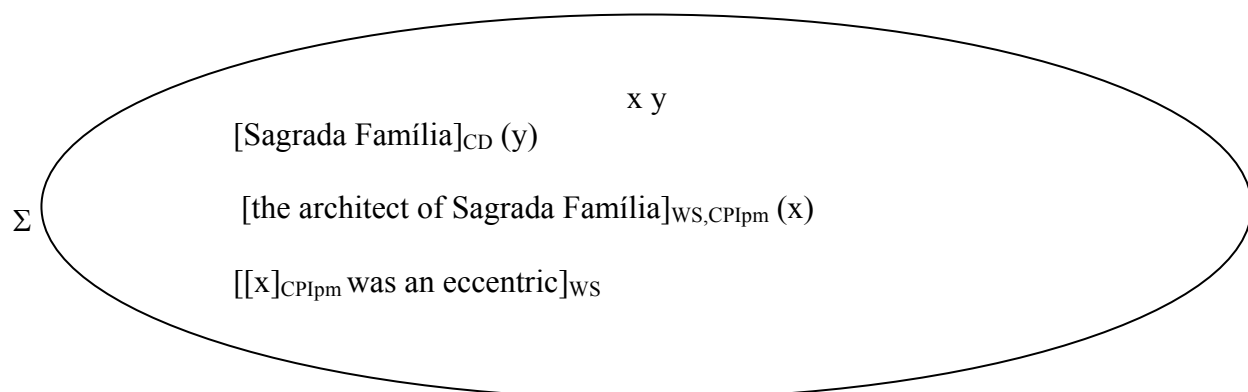


Fig. 5: Merger representation for the attributive reading of example (16)

These merger representations have to be qualified as partial representations in that the temporality of the proposition is not represented. For the sake of clarity, we focussed only on the representation of the referring expressions. The application of DS to the representation of the interlocutors' concept of time is the example discussed in the following section.

## 7.2. Merger Representations of Time

Referring to past, present and future eventualities (events, states, processes) can be performed in a variety of ways. For example, in English, all of the expressions in (17a)-(17d) concern a future event.

- (17a) Lidia will play in a concert tomorrow evening.
- (17b) Lidia will be playing in a concert tomorrow evening.
- (17c) Lidia is going to play in a concert tomorrow evening.
- (17d) Lidia is playing in a concert tomorrow evening.
- (17e) Lidia plays in a concert tomorrow evening.

These future-time referring expressions vary somewhat in their semantic import. The expression *will* in (17a) and (17b), called in DS regular future, is attested to be undergoing remodalization: from the modal meaning of volition it evolved into a grammatical marker of futurity, and is currently acquiring secondary modal colouring, while the periphrastic future form in (17c), *be going to + V*, is taking over as standard.

Van der Auwera and Plungian (1998: 111) discuss evidence for the so-called *remodalization cycle* in the history of the future where modal meaning gave rise to the (postmodal) future, which in turn functioned as a (premodal) basis for epistemic necessity as exemplified for the English *will* in (18).

(18) (*doorbell*) That will be the delivery man.

Fleischman (1982) calls this process a bidirectional semantic shift: from modality through grammaticalization to tense, back to modality again (see also Traugott 2006). Next, (17d) and (17e) involve a strong sense of prediction, involving an element of planning. In DS these forms are referred to as futurate progressive and ‘tenseless’ future (after Dowty 1979) respectively. Finally, the overtly modal forms in (17f)-(17i) can also have future-time reference.

(17f) Lidia must be playing in a concert tomorrow evening.

(17g) Lidia ought to/should be playing in a concert tomorrow evening.

(17h) Lidia may be playing in a concert tomorrow evening.

(17i) Lidia might play in a concert tomorrow evening.

The forms in (17f) and (17g) are epistemic necessity future, which can also be classified as evidential, and those in (17h) and (17i) are epistemic possibility future. In DS, all of the means of expressing the future are assessed with respect to the degree of modality, corresponding to the degree of epistemic detachment from the situation expressed by the sentence. Temporality is represented by means of a version of a sentential operator of epistemic modality, which is a sub-species of the operator of Acceptability ACC, loosely modelled on Grice (2001). ACC assumes the value ‘epistemic’ ( $\vdash$ ) and it is also indexed for the degree of modality represented as  $\Delta$  as in (19).

(19)  $ACC_{\Delta} \vdash \Sigma$                     ‘it is acceptable to the degree  $\Delta$  that  $\Sigma$  is true’

ACC is also indexed for a type of expression such as for example *rf* for ‘regular future’ and, where necessary, for the lexical source such as *may* in *epf may* for ‘epistemic possibility future with *may*’, in order to differentiate it from *epf might* or *epf could*. ACC stands for the modal and temporal specification of the situation and in this sense it is a sentential, or a propositional, operator. However, DS has a lot to say about the qualities of the unit it operates on. As is well known, there are problems with making it operate on a sentence or a proposition. Equally, there are problems with making it operate on a state or event (see e. g. Kamp and Reyle 1993; Pianesi and Varzi 2000). DS makes it operate on the so-called merged proposition which is then analysed as a merger representation  $\Sigma$  and is composed according to the principles of pragmatic compositionality of the merger illustrated above in Fig. 2. Merged proposition avoids the pitfalls of sentences or propositions in that, founded on the principles which include the rejection of the syntactic constraint, it stands for the representation of the situation by the speaker – or, in more detail, for the main, primary meaning pertaining to the situation intended by the Model Speaker and recovered by the Model Addressee. ACC operates on this content, forming the  $\Sigma$  of the entire utterance, including its temporal orientation.

Figs 6-8 are examples of merger representations for future-time reference. Fig. 6 represents regular future in (17a). In order to differentiate between the representation of the entire utterance and the representation of the situation on which ACC operates, the first is referred to as  $\Sigma$  and the latter as  $\Sigma'$ .

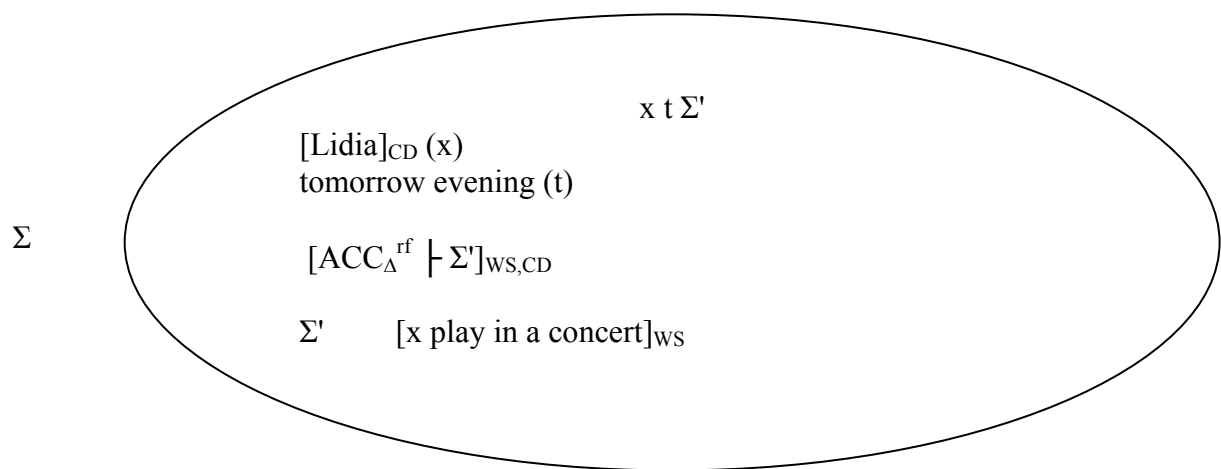


Fig. 6:  $\Sigma$  for example (17a), regular future

The indices following  $[ACC_{\Delta}^{rf} \vdash \Sigma']$  signal that the relevant, active building blocks of the representation are here word meaning and sentence structure (WS) and cognitive default (CD) in that the meaning of the construction is produced by the meaning of the words, the grammar, and the default value of the auxiliary *will*. WS alone is not sufficient here because of the existence of the wide array of other non-future uses of *will*, to mention only habitual *will*, also called dispositional necessity *will*, as in (20).

(20) Lidia will always play the piano when she is upset.

Futurative progressive in (17d) obtains a merger representation as in Fig. 7.

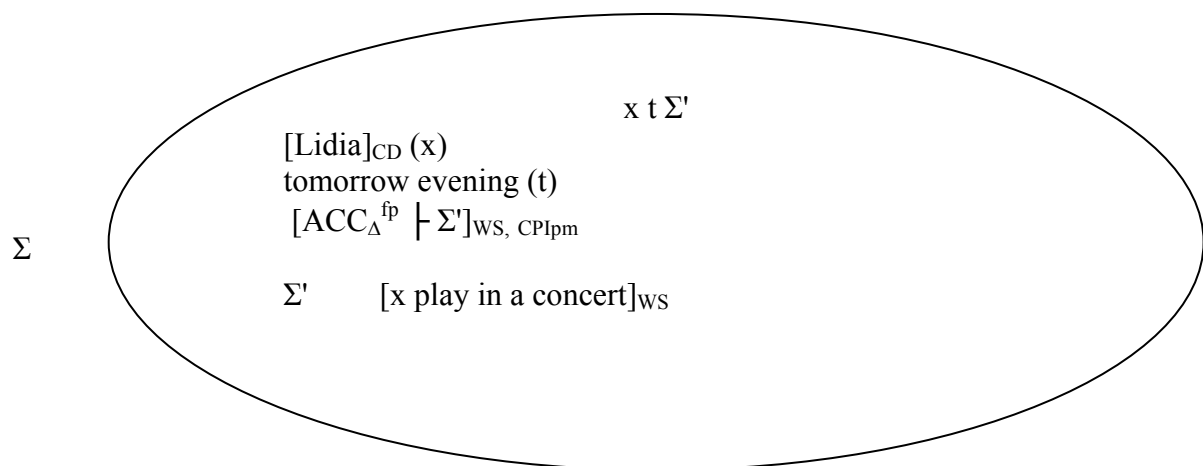


Fig. 7:  $\Sigma$  for example (17d), futurative progressive

The superscript *fp* on  $\Delta$  indicates that the degree of epistemic modality pertains to that associated with the futurative progressive (*fp*) form. The subscript *CPI<sub>pm</sub>* on ACC indicates here that the future-time reference of the present continuous form ‘is playing’ is obtained via conscious pragmatic inference (CPI) that contributes to the primary meaning (pm).

When future-time reference is represented by means of an appropriately indexed ACC, it is easy to depict the fact that overt modals such as *may* in (17h) also perform future-time reference, amalgamated with the function of conveying modal detachment. (17h) obtains a representation as in Fig. 8.

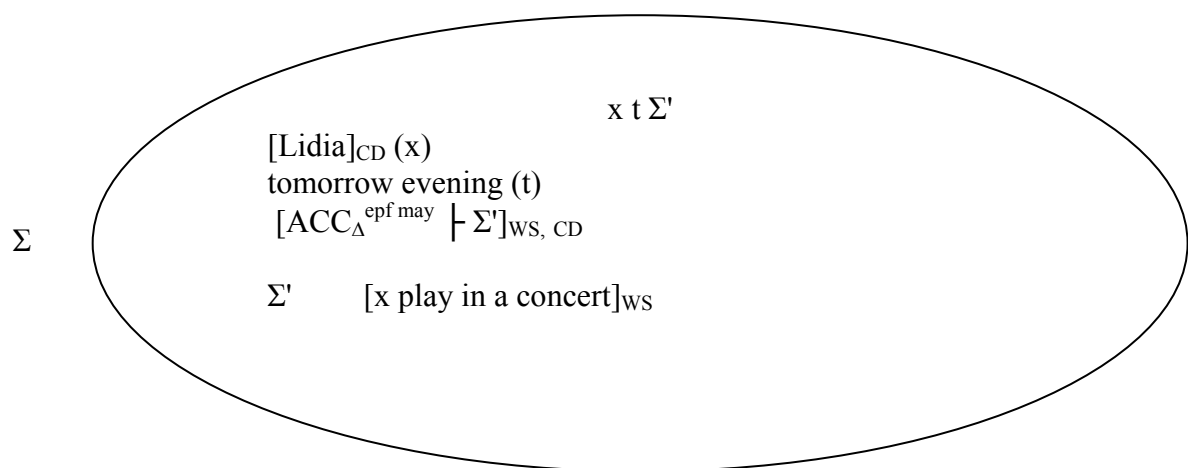


Fig. 8:  $\Sigma$  for example (17h), future *may*

Epistemic possibility future conveyed by means of the verb *may* (*epf may*) is associated with the cognitive default (CD) type of information and thereby with the source of information IS (properties of the human inferential system) of Fig. 1. Since *epf* can be conveyed by other verbs, the specification of the lexical source (*may*) is necessary in this case.

It is extensively argued in DS that just as the future is modal in that it pertains to various degrees of probability and is conveyed as various degrees of speaker's detachment from the situation, so the past is modal in an analogous way.<sup>7</sup> In other

<sup>7</sup> See Jaszczolt forthcoming c for evidence and arguments supporting the view that the semantic (and thereby, in DS, conceptual) category of temporality is supervenient on the semantic category of

words, just as there is branching future in the sense of the mental representation of the future, so there is branching past in the sense of the mental representation of the past, also called the concept of the past, psychological past, internal past, and so forth. The present, although normally associated with the deictic centre of a speech event and therefore represented with a high degree of modal commitment, also allows for a cline of epistemic modality. To put it in psychological/phenomenological terms, just as the concept of the future pertains to anticipations, so the concept of the past pertains to memories and the concept of the present to the view of what is most likely to be the case now. For example, (21a)-(21e) all refer to the present.

- (21a) Lidia is playing in a concert now.
- (21b) Lidia will be playing in a concert now.
- (21c) Lidia must be playing in a concert now.
- (21d) Lidia may be playing in a concert now.
- (21e) Lidia might be playing in a concert now.

Present continuous form in (21a) yields what is called in DS regular present; (21b) and (21c) exemplify epistemic necessity present, also classified as evidential; the forms in (21d) and (21e) pertain to epistemic possibility present. Dispositional necessity present, also known as habitual present, in (21f), repeated from (20), can also be added to this list.

- (21f) Lidia will always play the piano when she is upset.

Merger representations for (21a)-(21f) are constructed analogously to those for future-time reference, using the ACC operator, the indices on  $\Delta$ , and the indices for the types of information that builds up  $\Sigma$ . The same principles govern the construction of  $\Sigma$ s for past-time reference as in (22a)-(22g).

- (22a) Lidia played in a concert yesterday evening.
- (22b) Lidia was playing in a concert yesterday evening.
- (22c) Lidia would have been playing in a concert then.

---

modality. Merger representations for future, present and past-time referring constructions are also presented there.

- (22d) Lidia must have been playing in a concert yesterday evening.  
 (22e) Lidia may have been playing in a concert yesterday evening.  
 (22f) Lidia might have been playing in a concert yesterday evening.

The past-time referring expressions ‘played’ and ‘was playing’ in (22a) and (22b) correspond to regular past; (22c) and (22d) are examples of epistemic necessity past, also classified as inferential evidentiality; (22e) and (22f) pertain to epistemic possibility past. We should also add to this list the past of narration in (22g):

- (22g) This is what happened yesterday: Lidia goes to London, meets Sue at King’s Cross Station, suggests going to a concert...

The past of narration signals a high degree of epistemic commitment, comparable to that of regular past, in that the situation is vividly present in the speaker’s memory. Again, the differences in the degree of modal detachment can be easily captured in DS by means of ACC, degrees of  $\Delta$ , and sources of information that composes  $\Sigma$ . The analysis is analogous to that presented for the future.

The interaction of WS, CPI, CD and SCWD, supported by the freedom from the syntactic constraint on the composition of the main meaning of the utterance, give this framework an unquestioned advantage over other post-Gricean contextualist approaches in that the representations of DS model the main message intended by the speaker and recovered by the addressee rather than a proposition which sits half-way between utterance-type meaning and speaker’s primary meaning. In other words, DS takes a big step towards representing psychologically real and psychologically interesting meanings, not shunning abolishing the artificial and totally unnecessary restrictions imposed by the WS source, namely by the logical form of the sentence. Since the logical form of the sentence is not a level of meaning that would correspond to a real phase in utterance processing, the methodological principle of parsimony requires that we treat it on a par with other sources. What happens in practice is that the types of information identified here interact incrementally, without necessarily ‘waiting’ for the logical form of the sentence to be delivered first. Although the full algorithm of this interaction is still a task for the future and we don’t at present know the exact length or content of the interacting building blocks, the incremental

character of processing and the interaction of the building blocks as identified here are well attested. Temporality is a good example on which this interaction can be demonstrated. It is particularly diaphanous when considered in a contrastive perspective. Languages such as Thai, in which overt marking of temporality is optional, often resort to CPI and CD in conveying the temporal location of a situation (see e.g. Srioutai 2004, 2006).

## 8. Future Prospects

There is currently an ongoing debate in post-Gricean circles concerning the extent to which considerations of discourse processing should enter into a theory of meaning (cf. e. g. Levinson 2000; Atlas 2006; Jaszczolt forthcoming d). DS stands firmly on the side of psychologism in semantic theory in that it demonstrates that the composition of meaning, understood as the main, primary intended meaning, can only be explained when we take into consideration all of the building blocks that contribute to this meaning, and the building blocks are only explained when we trace them down to the sources of information about meaning that participate in the construction and recovery of a message.

The rejection of the syntactic constraint comes out as a natural concomitant of this pragmatic compositionality view. The cases where merging WS with, say, SCWD or CD produces a representation that does not resemble the logical form of the uttered sentence are no longer regarded as special cases. The preservation of the logical form as the ‘core’ is not the norm, and neither is there a requirement that the primary meaning of the utterance has to entail the proposition uttered or be a development of the logical form of the sentence. Primary meaning is the most salient, main meaning *tout court*. It is rather surprising that a unit as natural as primary meaning was not recognized as an entity in its own right in Gricean pragmatics before DS but instead was split between the explicit/said content and the implicature. If the main intended meaning happens to look like Gricean implicature, so be it: it is still the main meaning to be modeled in a psychologically real account of discourse.

Moreover, artificial efforts to maintain the need for the unit pertaining to the developed logical form can lead to formidable complications of the theoretical apparatus. To give just one example of Recanati’s (2004) literal-nonliteral distinction, the preservation of the syntactic constraint leads to the following typology. First, there

is *t*-nonliterality (type-nonliterality) which pertains to departures from utterance-type meaning, such as, say, meaning that Paul is in Cambridge by ‘He is here’. But this meaning is still *m*-literal because it departs from the sentence minimally: the departure is constrained by conventions, such as filling in indexical expressions with referents. In contrast, an implicature such as that Paul is easily contactable counts as *m*-nonliteral. Next, Recanati introduces *p*-literality, which pertains to departures from the sentence but not necessarily to those governed by linguistic conventions. For example, ‘The Queen visited Cambridge and everyone cheered’ has *p*-literal meaning that the Queen visited Cambridge *and as a result* everyone cheered. This meaning is *p*-literal but *m*-nonliteral. Now, to complicate matters further, metaphors are normally *p*-literal in that they involve an automatic shift to the *ad hoc*, target concepts. ‘Mary is a doormat’ has as *p*-literal meaning that Mary is a subservient woman without strong character or ambitions. But novel metaphors that require conscious processing will count as *p*-literal and at the same time nonliteral in the ordinary sense of being figurative. It appears that they are *p*-literal not in virtue of being automatic, subconscious meanings, because the awareness of their ‘figurative’ character and makeup, as Recanati (2004: 77) says, comes in degrees. They are *p*-literal because they have to fit into the previously assumed matrix of developments of the logical form which are not linguistically controlled, i. e. cases that include the discussed enrichment of *and* to *and as a result* or the conceptual shift from *doormat* to *subservient person*. Since novel metaphors which are felt as figurative meanings also pertain to such modifications of the logical form of the sentence, they have to fit into the *p*-literal slot, sense or no sense, confusion or no confusion!

The solution to this conceptual muddle is very simple indeed and comes from DS: once the syntactic constraint is abandoned, the problem disappears: there is no *p*-literalness, there is even no *m*-literalness. Building blocks of the merger representation result in the primary meaning which is *felt* as literal or nonliteral, although the distinction itself is of no interest for composing the representation. On the other hand, the sources and types of information are directly informative and have a common-sense feel to them. It is as simple as that.

The DS-theoretic analysis has now been applied to quite a wide range of constructions spanning several languages. However, the theory is still quite new and in the process of development. There are constructions and languages that have not been discussed. There are also many theoretical questions that require answers, such

as the regularities, laws, or heuristics governing the interaction of the building blocks of the merger representation. It seems to me at present that the quest for an algorithm of this interaction can be best pursued empirically; the construction of the theory ends with proposing  $\Sigma$  for various types of expressions and various problematic phenomena such as presupposition. The question of the exact interaction is a question of processing and should be regarded as such: ‘armchair psychologizing’ ends with constructing  $\Sigma$ s. The questions of, say, the length of the WS unit which interacts with, say CPI, or the exact list of what counts as CD in virtue of the structure and operations of the brain or as SCWD in virtue of automatization of inferences, are best pursued within experimental psychology. DS provides a semantic theory that allows for processing considerations and it feeds ideas to experimental psychology. It also provides a precise account of what counts as default interpretation, thereby making a big step forward from the terminological misunderstandings between those who take them to be statistically common meanings, automatic additions in processing, shortcuts through inferential efforts but themselves still inferential, common-sense context-dependent interpretations of natural language sentences, and so on and so forth.

## References

- Atlas, J. D. 1977. ‘Negation, ambiguity, and presupposition’. *Linguistics and Philosophy* 1. 321-36.
- Atlas, J. D. 1979. ‘How linguistics matters to philosophy: Presupposition, truth, and meaning’. In: C.-K. Oh and D.A. Dinneen (eds). *Syntax and Semantics*. Vol. 11. New York: Academic Press. 265-81.
- Atlas, J. D. 2006. ‘Remarks on F. Recanati’s *Literal Meaning*’. Manuscript.
- van der Auwera, J. and V. A. Plungian. 1998. ‘Modality’s semantic map’. *Linguistic Typology* 2. 79-124.
- Bach, K. 1994. ‘Semantic slack: What is said and more’. In: S. L. Tsohatzidis (ed.). *Foundations of Speech Act Theory: Philosophical and Linguistic Perspectives*. London: Routledge. 267-91.
- Bach, K. 2004. ‘Minding the gap’. In: C. Bianchi (ed.). *The Semantics/Pragmatics Distinction*. Stanford: CSLI Publications. 27-43.

- Bach, K. 2006. 'The excluded middle: Semantic minimalism without minimal propositions'. Unpublished paper.
- Carston, R. 1988. 'Implicature, explicature, and truth-theoretic semantics'. In: R. M. Kempson (ed.). *Mental Representations: The Interface between Language and Reality*. Cambridge: Cambridge University Press. 155-81.
- Carston, R. 1998. 'Postscript (1995)' to Carston 1988. In: A. Kasher (ed.). *Pragmatics: Critical Concepts*. Vol. 4. London: Routledge. 464-79.
- Carston, R. 2002. *Thoughts and Utterances: The Pragmatics of Explicit Communication*. Oxford: Blackwell.
- Carston, R. 2007. 'How many pragmatic systems are there?'. In: M. J. Frápolli (ed.). *Saying, Meaning and Referring: Essays on François Recanati's Philosophy of Language*. Basingstoke: Palgrave Macmillan. 18-48.
- Culicover, P. W. and R. Jackendoff. 2005. *Simpler Syntax*. Oxford: Oxford University Press.
- Davis, W. A. 1998. *Implicature: Intention, Convention, and Principle in the Failure of Gricean Theory*. Cambridge: Cambridge University Press.
- Davis, W. A. 2007. 'How normative is implicature'. *Journal of Pragmatics* 39. 1655-72.
- Donnellan, K. S. 1966. 'Reference and definite descriptions'. *Philosophical Review* 75. 281-304.
- Dowty, D. R. 1979. *Word Meaning and Montague Grammar: The Semantics of Verbs and Times in Generative Semantics and in Montague's PTQ*. Dordrecht: D. Reidel.
- Dowty, D. R. 2007. 'Compositionality as an empirical problem'. In: C. Barker and P. Jacobson (eds). *Direct Compositionality*. Oxford: Oxford University Press. 23-101.
- Fleischman, S. 1982. *The Future in Thought and Language: Diachronic Evidence from Romance*. Cambridge: Cambridge University Press.
- Grice, H. P. 1978. 'Further notes on logic and conversation'. In: P. Cole (ed.). *Syntax and Semantics*. Vol. 9. New York: Academic Press. Reprinted in: H. P. Grice. 1989. *Studies in the Way of Words*. Cambridge, Mass.: Harvard University Press. 41-57.
- Grice, P. 2001. *Aspects of Reason*. Ed. by R. Warner. Oxford: Clarendon Press.
- Hamm, F., H. Kamp and M. van Lambalgen. 2006. 'There is no opposition between Formal and Cognitive Semantics'. *Theoretical Linguistics* 32. 1-40.

- Hawkins, J. A. 2004. *Efficiency and Complexity in Grammars*. Oxford: Oxford University Press.
- Horn, L. R. 1988. 'Pragmatic theory'. In: F. J. Newmeyer (ed.). *Linguistics: the Cambridge Survey*. Vol. 1. Cambridge: Cambridge University Press. 113-45.
- Horwich, P. 2005. *Reflections on Meaning*. Oxford: Clarendon Press.
- Jackendoff, R. 2002. *Foundations of Language: Brain, Meaning, Grammar, Evolution*. Oxford: Oxford University Press.
- Jaszczolt, K. M. 1992. *Belief Sentences and the Semantics of Propositional Attitudes*. D.Phil. thesis. University of Oxford.
- Jaszczolt, K. M. 1997. 'The Default *De Re* Principle for the interpretation of belief utterances'. *Journal of Pragmatics* 28. 315-36.
- Jaszczolt, K. M. 1999. *Discourse, Beliefs, and Intentions: Semantic Defaults and Propositional Attitude Ascription*. Oxford: Elsevier Science.
- Jaszczolt, K. M. 2005. *Default Semantics: Foundations of a Compositional Theory of Acts of Communication*. Oxford: Oxford University Press.
- Jaszczolt, K. M. 2006. 'Defaults in semantics and pragmatics'. In: E. N. Zalta (ed.). *Stanford Encyclopedia of Philosophy*. <http://plato.stanford.edu/contents.html>
- Jaszczolt, K. M. 2007a. 'Variadic function and pragmatics-rich representations of belief reports'. *Journal of Pragmatics* 39. 934-59.
- Jaszczolt, K. M. 2007b. 'On being post-Gricean'. In: R. A. Nilsen, N. A. A. Amfo and K. Borthen (eds). *Interpreting Utterances: Pragmatics and Its Interfaces. Essays in Honour of Thorstein Fretheim*. Oslo: Novus. 21-38.
- Jaszczolt, K. M. forthcoming a. 'Semantics and pragmatics: The boundary issue'. In: K. von Heusinger, P. Portner and C. Maienborn (eds). *Semantics: An International Handbook of Natural Language Meaning*. Berlin: Mouton de Gruyter.
- Jaszczolt, K. M. forthcoming b. 'Semantics-pragmatics interface'. In: L. Cummings (ed.). *The Pragmatics Encyclopedia*. London: Routledge.
- Jaszczolt, K. M. forthcoming c. *Representing Time: An Essay on Temporality as Modality*. Oxford: Oxford University Press.
- Jaszczolt, K. M. forthcoming d. 'Psychological explanations in Gricean pragmatics and Frege's legacy'. In: I. Kecskes and J. Mey (eds). *Intentions, Common Ground, and the Egocentric Speaker-Hearer*. Berlin: Mouton de Gruyter.
- Jaszczolt, K. M. and J. Srioutai. forthcoming. 'Communicating about the past through

- modality in English and Thai' In: F. Brisard and T. Mortelmans (eds). *Cognitive Approaches to Tense, Aspect and Modality*. Amsterdam: J. Benjamins.
- Kamp, H. and U. Reyle. 1993. *From Discourse to Logic: Introduction to Modeltheoretic Semantics of Natural Language, Formal Logic and Discourse Representation Theory*. Dordrecht: Kluwer.
- Kempson, R. M. 1975. *Presupposition and the Delimitation of Semantics*. Cambridge: Cambridge University Press.
- Kempson, R. M. 1979. 'Presupposition, opacity, and ambiguity'. In: C.-K. Oh and D.A. Dinneen (eds). 1979. *Syntax and Semantics*. Vol. 11. New York: Academic Press. 283-97.
- Lee, H.-K. 2002. *The Semantics and Pragmatics of Connectives with Reference to English and Korean*. PhD dissertation, University of Cambridge.
- Levinson, S. C. 1987. 'Minimization and conversational inference'. In: J. Verschueren and M. Bertuccelli-Papi (eds). *The Pragmatic Perspective. Selected Papers from the 1985 International Pragmatics Conference*. Amsterdam: J. Benjamins. 61-129.
- Levinson, S. C. 2000. *Presumptive Meanings: The Theory of Generalized Conversational Implicature*. Cambridge, MA: MIT Press.
- Nicolle, S. and B. Clark. 1999. 'Experimental pragmatics and what is said: A response to Gibbs and Moise'. *Cognition* 69. 337-54.
- Pelczar, M. W. 2004. 'The indispensability of *Farbung*'. *Synthese* 138. 49-77.
- Pelczar, M. W. 2007. 'Forms and objects of thought'. *Linguistics and Philosophy* 30. 97-122.
- Pianesi, F. and A. C. Varzi. 2000. 'Events and event talk: An introduction'. In: Higginbotham, J., F. Pianesi and A. C. Varzi (eds). *Speaking of Events*. Oxford: Oxford University Press. 3-47.
- Pitts, A. 2005. 'Assessing the evidence for intuitions about *what is said*'. Manuscript. University of Cambridge.
- Predelli, S. 2005a. *Contexts: Meaning, Truth, and the Use of Language*. Oxford: Clarendon Press.
- Predelli, S. 2005b. 'Painted leaves, context, and semantic analysis'. *Linguistics and Philosophy* 28. 351-74.
- Preyer, G. and G. Peter (eds). 2005. *Contextualism in Philosophy: Knowledge,*

- Meaning, and Truth*. Oxford: Clarendon Press.
- 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. 2002. 'Unarticulated constituents'. *Linguistics and Philosophy* 25. 299-345.
- Recanati, F. 2004. *Literal Meaning*. Cambridge: Cambridge University Press.
- Recanati, F. 2005. 'Literalism and contextualism: Some varieties'. In: G. Preyer and G. Peter (eds). *Contextualism in Philosophy: Knowledge, Meaning, and Truth*. Oxford: Clarendon Press. 171-96.
- Recanati, F. 2007. 'Reply to Carston 2007'. In: M. J. Frápolli (ed.). *Saying, Meaning and Referring: Essays on François Recanati's Philosophy of Language*. Basingstoke: Palgrave Macmillan. 49-54.
- Saul, J. M. 2002. 'What is said and psychological reality; Grice's project and relevance theorists' criticisms'. *Linguistics and Philosophy* 25. 347-72.
- Schiffer, S. 1991. 'Does Mentalese have a compositional semantics?'. In: B. Loewer and G. Rey (eds) *Meaning in Mind: Fodor and his Critics*. Oxford: Blackwell. 181-99.
- Schiffer, S. 1994. 'A paradox of meaning'. *Noûs* 28. 279-324.
- Schiffer, S. 2003. *The Things We Mean*. Oxford: Clarendon Press.
- Sperber, D. and D. Wilson. 1986. *Relevance: Communication and Cognition*. Oxford: Blackwell.
- Sperber, D. and D. Wilson. 1995. *Relevance: Communication and Cognition*. Oxford: Blackwell. Second edition.
- Srioutai, J. 2004. 'The Thai *c1a*: A marker of tense or modality?' In: E. Daskalaki *et. al.* (eds). *Second CamLing Proceedings*. University of Cambridge. 273-80.
- Srioutai, J. 2006. *Time Conceptualization in Thai with Special Reference to D1ayIII, Kh3oe:y, Klaml3ang, Y3u:I and C1a*. PhD thesis. University of Cambridge.
- Sysoeva, A. and K. Jaszczolt. 2007. 'Composing utterance meaning: An interface between pragmatics and psychology'. Paper presented at the *10th International Pragmatics Conference*, Göteborg.
- Sysoeva, A. and K. Jaszczolt. forthcoming. 'More than radical pragmatics: Primary meaning without syntactic constraint'.
- Thomason, R. H. 1997. 'Nonmonotonicity in linguistics'. In: J. van Benthem and A.

ter Meulen (eds). *Handbook of Logic and Language*. Oxford: Elsevier Science. 777-831.

Traugott, E. C. 2006. 'Historical aspects of modality'. In: W. Frawley (ed.). *The Expression of Modality*. Berlin: Mouton de Gruyter. 107-39.