

# Communicating about the Past through Modality in English and Thai

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## *1. The rationale and objectives*

This paper concerns semantic representation of past-time reference. We begin with presenting our assumption that temporality is best thought of as a species of modality, understood as a degree of detachment from the content of the expressed proposition. We present some arguments in support of this stance and refer to other arguments already aired in the linguistic and philosophical literature. Next, we introduce the theory of Default Semantics in which the analysis of past-time/modal expressions will be conducted. We point out that the semantic representation of temporal expressions requires a perspective that combines the insights of cognitive approaches to meaning with a formal account of ‘pragmatic compositionality’. Finally, we apply this theory to the analysis of selected expressions with past-time reference in English and in Thai. In particular, we focus on the Simple Past and Narrative Present (called here Past of Narration) in English and on the modal auxiliary *dlayIII* in Thai that frequently assumes past-time reference. The reason for the choice of these forms of expressing past-time reference in these two languages is as follows. Thai is a language in which the temporality of the situation presented in the utterance is frequently left for pragmatic inference. In other words, grammatical and lexical markers of tense and aspect are optional. Moreover, there are auxiliaries in Thai which, although they are frequently regarded as tense markers, are in effect markers of modality in that while they can assume different temporal meanings, they can be easily analysed as markers of the speaker’s detachment from the situation presented in the sentence.<sup>1</sup> We analyse the meaning of *dlayIII* and demonstrate how the past-time reference can be pragmatically inferred. We describe the dependence of the meaning of *dlayIII* on word order. Next, we introduce the problem of classifying *dlayIII* as a past tense or a modal marker. The main argument of Section 5 of the paper consists of the

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<sup>1</sup> *DlayIII* is regarded as temporal in Supanvanich (1973), as modal in Noss (1964), Muansuwan (2002), and Iwasaki and Ingkaphirom (2005), and as both temporal and modal in Kanchanawan (1978).

presentation of a unified account of *dlayIII* as a modal marker whereby pastness is carried by its default interpretation. We conclude that a semantic framework in which pragmatic inference can be easily integrated is required for the analysis of (i) English sentences with past-time reference without overt markers of tense or aspect, as well as, and even more so, of (ii) Thai sentences with past-time reference in which marking of temporality is optional and often missing. Default Semantics proves to be an adequate theory to represent the meaning of such expressions in that various sources of information about meaning are distinguished and are treated with parity. Like Discourse Representation Theory (DRT, Kamp and Reyle 1993; Kamp *et al* forthcoming) from which it is derived, it combines the cognitive perspective on representing meaning with an aim to offer a formal account of how meaning is composed. Default Semantics proposes that compositionality is to be regarded as a pragmatic phenomenon and sought not on the level of linguistic semantics but rather on the level of the merger of information coming from diverse sources – an idea that is compatible with Jackendoff’s conceptualist semantics (Jackendoff 2002; Culicover and Jackendoff 2005). But it goes beyond DRT in giving no priority to the syntactic structure.

For the sake of comparison and contrast, before we move to the analysis of *dlayIII*, we first discuss two types of expressions that can assume past-time reference in English: the Simple Present, where the reference to the past interval or moment is fully grammaticalized in the form of the tense, and the Past of Narration, where the form that normally refers to the present time assumes past-time reference. We demonstrate how pragmatic inference allows the reference to the past to arise. We also briefly discuss how strictly modal expressions in English fit in the typology of past-time-referring constructions.

## 2. *Time as Modality*

The best place to begin discussing the structure and properties of time is McTaggart’s (1908) distinction between the A-and B-series. McTaggart (1908: 127) argues as follows:

‘Why do we believe that events are to be distinguished as past, present, and future? I conceive that the belief arises from distinctions in our own experience.

At any moment I have certain other perceptions, I have also the memory of certain other perceptions, and the anticipation of others again. The direct perception itself is a mental state qualitatively different from the memory of the anticipation of perceptions.’

McTaggart points out here the fact that the present moment has a special status in temporality: it allows us to go back into our memories or project forward with anticipation. Reality of the past and the future does not necessarily have to be the case. Instead, we have two options: to think of time as (a) real, moving from the past through the present to the future (or alternatively events as moving from the future into the present and then into the past), or as (b) a way in which human mind organizes timeless reality:

‘I shall speak of the series of positions running from the far past through the near past to the present, and then from the present to the near future and the far future, as the A series. The series of positions which runs from earlier to later I shall call the B-series.’

McTaggart (1908: 111).

In short, the A series is tensed, time belongs to events, and there is no real change.<sup>2</sup> One way of conceptualizing it would be as a stationary observer watching events that move in front of his/her eyes, as in Fig. 1.

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<sup>2</sup> The main representatives of this view are Arthur Prior (e.g. 1957, 1967, 1968, 2003), Peter Ludlow (1999), Joshua Parsons (2002, 2003), and Quentin Smith (1993).

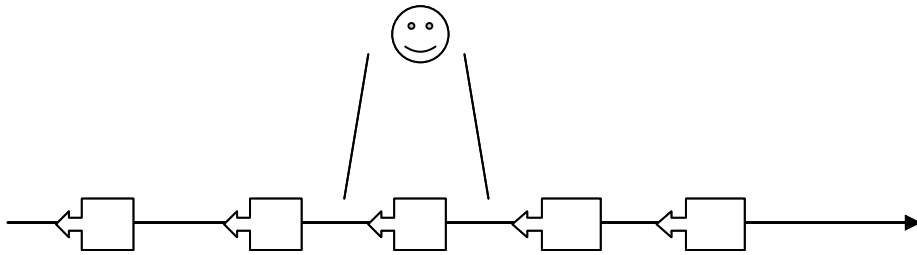


Fig. 1. A possible conceptualization of the A series

The B series is untensed, events are related by means of the earlier-than/later-than relations, there is no real change, and time is psychological: it is not real but rather belongs to the observer. For example, for Mellor (1998: 123), the experience of time consists of, and can be explained as, the accumulation of memories.<sup>3</sup> One way of conceptualizing the B series is as an observer who moves between the timeless, real and stationary events as in Fig. 2.

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<sup>3</sup> The main representatives of this position are Hans Reichenbach (1948), D. H. Mellor (1993, 1998), and also recently Thomas Sattig (2006) who argues that although humans think in terms of the A series, the A series is supervenient on the B series. In a wider intellectual domain, Albert Einstein and Bertrand Russell also belong to B-theorists.

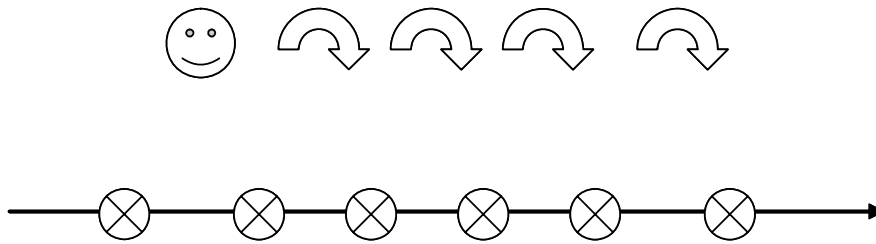


Fig. 2. A possible conceptualization of the B series

The following analysis will be founded on the B-theory principles. In particular, we shall employ the following assumption for representing time in semantics:

*The categories of tense, aspect, and whole propositions are founded on mental representations of events, organised on non-temporal principles.*

The idea that time is not the most basic epistemological category but rather is founded on, or supervenient on, some other categories is not new. Moens and Steedman (1998) and Steedman (1997) argue that temporality is supervenient on the perspective and contingency. They claim that tense and aspect systems in languages are founded on the same conceptual primitives as evidentiality. In a similar vein, van Lambalgen and Hamm (2005) say that goals, planning, and causation link the past with the present and the future. In general, ‘the *linguistic* coding of time is (...) driven by the future-oriented nature of our cognitive makeup’ (van Lambalgen and Hamm 2005: 13).

Next, in truth-conditional semantics, Parsons (2002, 2003) puts forward a counterfactual theory of tense: he develops a semantics in which truth-at-a time is replaced with truth-at-a-world. Expression (1) is then analysed as a sum of (2) and (3), where times are bound to counterfactual situations:

- (1) M was wholly future and will be wholly past.

- (2) There is some past time such that, were it that time, M would be wholly future.
- (3) There is some future time such that, were it that time, M would be wholly past.

(adapted from Parsons 2002: 10)).

For the purpose of this paper we shall not engage with the detailed discussions on the ontology of time but instead take the extant arguments as sufficient for postulating that time is not a primitive category but instead supervenes on something more basic. We shall assume that time is a degree of detachment from what, in timeless reality, would be affirmed with certainty. For example, to come back to the first quotation from McTaggart at the beginning of this section, time is a detachment from the possibility of present perception. For the purpose of semantic analysis, we shall conceive of time as a degree of detachment from the content of the expression uttered. That content can in principle be construed as a proposition, a sentence, a situation, or an event. In Section 3 we shall argue that event is the most adequate construct for depicting this content as an object of this detachment.

We can now move to making this notion of detachment more precise. The best candidate for the semantic/pragmatic detachment as conveyed by means of the utterance itself is the semantic notion of epistemic modality, understood rather broadly, as for example in van der Auwera and Plungian (1998: 81-82), according to whom epistemic modality ‘refers to a judgement of the speaker: a proposition is judged to be uncertain or probable relative to some judgement(s).’ The authors also point out that ‘...epistemic modality concerns (has scope over) the whole proposition’ (p. 82). This is an important characteristic of epistemic modality and it will allow us to represent it in our semantics as an operator that is akin to sentential operators in modal logic. We shall also follow van der Auwera and Plungian and assume that modality is a category compatible with evidentiality in that inferential evidentiality overlaps with epistemic necessity, as for example, the behaviour of the English *must* + base verb form or *must have* + past participle demonstrate. The speaker looks at the watch and says:

- (4) Tom must be in London by now.
- (5) Mary must have finished her piano practice by now.

*A fortiori*, we shall not be adopting more restricted, grammar-driven definitions of evidentiality such as Aikhenvald (2004) according to which evidentials are restricted to ‘the grammatical means of expressing information source’ (p. xi) and ‘[t]o be considered as an evidential, a morpheme has to have “source of information” as its core meaning; that is, the unmarked, or default interpretation’ (p. 3). For our purposes, evidentiality, when it is used to show detachment from the situation conveyed in the expressed proposition, is a sub-species of modality.

In order to argue that time is supervenient on the category of detachment or modality one has to consider the future, the present, and the past. We discussed the first at length elsewhere, both for English (Jaszczolt 2003, 2005, 2006) and for Thai (Srioutai 2004a, b, 2006). We used the theory of Default Semantics (Jaszczolt 2005) in order to show that the English *will* and the Thai *clā* are best analysed as markers of modality. We are not alone with this claim. Enç (1996) convincingly demonstrated that *will* behaves like a modal in that the sequence of tenses does not apply there and *will* does not behave analogously to the past-tense markers but rather seems to side with the modals (see Enç (1996: 350). Fleischman (1982), in her work on Romance languages, showed that the future is closely related to irrealis or nonfactive modality and deontic modality in that in the historical perspective we observe a bidirectional semantic shift: from clearly modal meaning of a form, to tense, and to modal colouring again. Similarly, van der Auwera and Plungian (1998) derive the future from the participant-external necessity and argue that the future form in turn acquires the meaning of epistemic necessity: the process they call a *remodalization cycle*. There are also ample arguments in the literature to the effect that futurity as an epistemological category. Ludlow (1999), for example, derives futurity from *predictability* and *potentiality*, or a *disposition of the world*. But while the future can be more readily conceived of as modal in that the future is to a large extent unknown and speakers normally talk about it expressing a greater or lesser degree of detachment, the claim that the present or the past are modal yields much less readily to common intuitions. While there are many possible ‘futures’, there is only one past. And yet there does not necessarily seem to be a qualitative difference between them. Just as the future, the past is not ‘here and now’, in front of our eyes. Evidence we have for it and memories we collect are permeated with a degree of detachment from what really was the case. That is why, in English, we can use a phrase with the past

tense form ‘went to London’, as well as a weaker, modal equivalent ‘may have gone to London’, depending on the degree of certainty.

Another way to argue for pastness as modality is to look at counterfactuals, or similarity across possible worlds. Thomason (2002) develops a formal-semantic account of the past where pastness is modality in the sense of *historical necessity*: if two possible worlds are similar at a particular moment in time, then they share the same past up to and including that moment in time. He gives a formal account of the fact that what was a possibility in the future, becomes necessity in the past: historical possibilities diminish monotonically with the passage of time. We will share this view of the past as modality and in what follows will provide an analysis of some expressions with past-time reference in English and Thai where expressing time does not necessarily rely on grammatical and lexical markers of temporality, or, in other words, on tense and temporal adverbials. While the observation that expressing temporality does not require tense, aspect or temporal adverbials is not in itself new or controversial, we will follow it through and show that the fact that information about the time of the eventuality can be pragmatically inferred is not to be regarded as an anomaly or exception in semantic theory and can be easily accounted for in a semantic representation of utterances, as long as semantics is understood to be a ‘pragmatics-rich’ semantics, where information from inference, conventions, and other non-linguistic sources contributes to the representation of meaning. This semantics becomes a truth-conditional theory of utterance meaning. In the next section we introduce such a suitably ‘interactive’ view on the sources of information about meaning called Default Semantics.

### *3. Merger representations*

It has been widely accepted that the interpretation of the speaker’s utterance by the addressee has to rely both on the process of decoding and on inference. In addition to composing the meaning of the sentence out of the meanings of the lexical items and the structure in which these lexical items are placed, the hearer has to engage in inferential processes in order to enrich and supplement this meaning and arrive at the intended message. The exact interaction of this pragmatic inference with the output of syntactic processing varies from one account to another, and so do the assumptions as to the extent of application and the conscious/subconscious nature of these processes (see e.g. Recanati 2004). Nevertheless, the interaction of these two

components is now common currency in post-Gricean pragmatics, founded on the ideas of the underdeterminacy of semantics, the pragmatic enrichment of the output of syntactic processing, and the truth-conditional relevance of the representation so enriched. Since the 1980s, truth-conditional semantics has been understood rather broadly and freely by Gricean pragmaticists, in that the truth conditions that are of interest in the analysis of utterance interpretation are not the truth conditions of the sentence, that is the unit that is physically uttered and processed according to the rules of syntax, but rather the truth conditions of the utterance, or speech act, that is the representation that is enriched as a result of pragmatic inference and better approximates the meaning as intended by the speaker (see e.g. Sperber and Wilson, e.g. 1986; Carston, e.g. 1988, 2002; Recanati, e.g. 1989, 2004). One of the best developed variants of this view is at present truth-conditional pragmatics (Recanati 2003, 2004). According to this view, the truth value is predicated of an utterance or *what is said* by the speaker. What is said is the only level at which meaning is consciously accessible to the interlocutors: going below this level is always subdoxastic. For example, in (6) and (7), the meanings that are available to the communicators in a particular context are those in (6a) and (7a) respectively. They result from the pragmatic enrichment of the output of syntactic processing.

(6) Everybody went to London.

(7) I haven't eaten.

(6a) Everybody in this house went to London.

(7a) I haven't eaten breakfast yet.

Truth-conditional pragmatics subscribes to *contextualism*, a standpoint according to which this pragmatic contribution is always present. In other words, utterances are always processed in context and this context affects their interpretation.<sup>4</sup> In contextualism, 'there is no level of meaning which is both (i) propositional (truth-evaluable) and (ii) minimalist, that is, unaffected by top-down factors' (Recanati 2004: 90). To compare, for *quasi-contextualists*, there is such a level of a minimal proposition but it does not play a role in utterance interpretation

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<sup>4</sup> See Recanati 1994, 2004

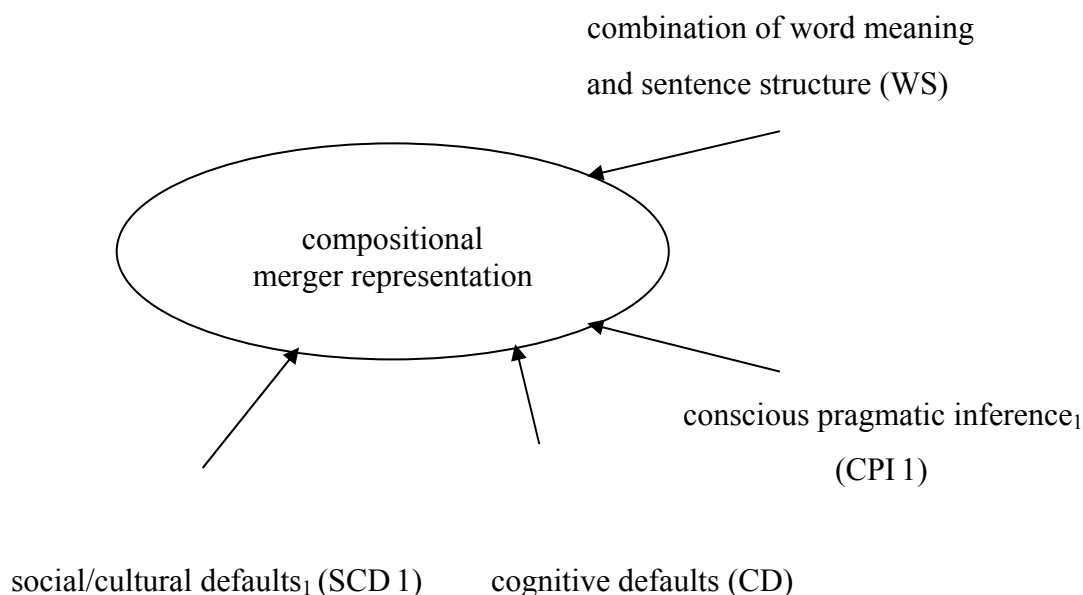
(see Recanati 2004: 86).<sup>5</sup> However, it is by no means certain that such top-down factors *always* play a part. Be that as it may, what matters for our current purpose is the assumption that this level of pragmatically enriched meaning is salient in communication and we have to have an adequate theory to show how the interaction of the semantic and the pragmatic aspects of meaning takes place. Or, at least, one has to be able to propose a model of this interaction. Remaining in the overall orientation of semantic underdeterminacy, we now introduce the main theses of Default Semantics and discuss the process of construction of utterance meaning proposed in this theory. We distinguish the sources of information about utterance meaning and introduce the notion of a merger representation.

Default Semantics distinguishes four sources of information about utterance meaning: (i) word meaning and sentence structure (WS); (ii) conscious pragmatic inference (CPI); (iii) cognitive defaults (CD); and social/cultural defaults (SCD). Information from these sources combines to produce *what is said*: the utterance meaning intended by the speaker and recognised as so intended by a model hearer. The representation of the output of this interaction is called *merger representation*. The model in Fig. 3 represents the process of utterance interpretation.

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<sup>5</sup> Recanati (2004: 83ff) also discusses the so-called literalist positions according to which the truth-conditional content can be ascribed to *sentences* rather than utterances or speech acts. We will not contribute to this debate in this paper but will take contextualism, the view opposed to literalism, as our starting point.

### Stage I: Processing of the truth-conditional content



### Stage II: Processing of implicatures

- social/cultural defaults<sub>2</sub> (SCD 2)
- conscious pragmatic inference<sub>2</sub> (CPI 2)

Fig. 3. Utterance interpretation in Default Semantics (adapted from Jaszczolt 2005: 73).

Stage I is what will interest us in the current investigation as it represents the process of the recovery of *what is said*. The output of the syntactic processing of the sentence is represented as WS. This output can interact with the result of pragmatic inference (CPI 1) as in (8), producing the meaning in (8a).

(8) Anne missed the train and was late for work.

(8a) Anne missed the train *and as a result* was late for work.

The juxtaposition of the simple sentences about the two events: Anne's missing the train and Anne's being late for work produces the effect of the strengthening of the ordinary, truth-functional conjunction *and* to the relation of consequence: *and as a result*.<sup>6</sup>

In addition to WS and CPI 1, there are two more sources that contribute to what is said. They are shortcuts through pragmatic inference that occur either due to the properties of mental operations or due to the shared cultural and social knowledge of the interlocutors. The first one is called a cognitive default (CD), and the latter a social/cultural default (SCD 1).

Cognitive defaults explain the reason behind the salience of, say, referential interpretations of definite descriptions such as 'the author of *The Man without Qualities*' in (9). It is intuitively plausible that the addressee B is likely to react to A's statement by posing a question that assumes that A knows who the author of the novel was.

- (9) A: The author of *The Man without Qualities* was a very good writer.  
B: Really? Who is it?

We can also think of a situation in which speaker A talks about whoever happened to write this novel, without knowing, or remembering, the identity of the person. In yet another scenario, speaker A is referentially mistaken and thinks of, say, Marcel Proust (instead of the correct Robert Musil) as the author of the novel. Now, the preferred, most typical use of definite descriptions is the one on which both the speaker and the hearer share the assumption that the referent is mutually known. In other words, it is assumed that the use of the definite description is referential: in (9), it is *about* Robert Musil. It can be safely assumed that such an assumption is not consciously processed. Instead, it comes as a 'shortcut' through the inferential process, as a default meaning founded on the property of human mental states called their *intentionality* or *aboutness*. Mental states such as believing, doubting, or fearing have an *object*, are about *something*, and this aboutness normally amounts to knowing the identity of the object thought of: a belief about the author of *The Man without Qualities* normally

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<sup>6</sup> For a detailed discussion, see Jaszczolt 2005, Chapter 8.1.1.

contains as much information as the definite noun phrase allows it to contain. We assume that the strongest intentionality is the norm in that it is not weakened by the speaker's lack of knowledge, misinformation, lack of attention, and other impeding circumstances. The strongest intentionality is the default intentionality and pertains to the referential, correct reading of the description where it stands for Robert Musil. So, the explanation is simple: the default interpretation is an interpretation on which intentionality is the strongest. This type of default is an example of what we call the *cognitive default*. Needless to say, if intentionality of mental states allows for degrees of strength, then so does the speaker's intending that accompanies his or her utterance. Normally, the strongest intentionality of a mental state corresponds to the strongest referring by the act of communication that externalizes this mental state. In other words, if A's belief in (9) is about Robert Musil, then A's utterance in (9) is also about Robert Musil. The strongest intentionality and the strongest referential intention go hand in hand.<sup>7</sup>

Cognitive defaults pertain to ample types of language constructions and phenomena. They explain the use of temporal expressions, the construction of anaphoric dependencies, and the use of number terms.<sup>8</sup> But they cannot be extended as an explanatory tool to *all* cases of default meanings. Some defaults are of a very different provenance: they can come from social practices or cultural heritage. It is not difficult to produce examples of salient interpretations that arise due to some cultural or social stereotypes or cultural or social knowledge. In example (10), it is the shared cultural knowledge that almost invariably produces the interpretation (10a) in most (reasonably educated) speakers within the western culture.

(10) Leonardo's women all look similar.

(10a) The women painted by Leonardo da Vinci all look similar.

Cultural knowledge allows the addressee to identify Leonardo as Leonardo da Vinci, and the possessive as authorship rather than, say, ownership. Similarly, in (11), the salient interpretation (11a) arises due to the shared knowledge that in the relevant society babies are raised by their own parents.

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<sup>7</sup> The argument can also be restated in terms of communicative, informative and referential intentions, or Bach and Harnish's (1979: 7) communicative-illocutionary intention. See Jaszczolt (2005: 51-52).

<sup>8</sup> All of these are discussed in detail in Jaszczolt 2005, Part II.

- (11) The baby cried and the father rocked the cradle.  
(11a) The baby cried and the baby's father rocked the cradle.

Following the theory of Default Semantics, we tentatively assume that these defaults are non-inferential, since there is no evidence that would make us assume otherwise. The interpretation is automatic, instantaneous and unreflective, in agreement with Recanati's idea of subdoxastic enrichment.<sup>9</sup> It has to be pointed out that, in Default Semantics, defaults are post-propositional: since at present we have no satisfactory answer to the question as to at what stage exactly default enrichment takes place for various constructions, it is the 'safe bet' to assume that they arise after the whole utterance has been processed. A concomitant feature of this post-propositionality is that they are rarely cancelled.<sup>10</sup> Assuming that such enrichments are uniformly 'local' leads to wrong predictions, as is evident from the experimental testing of Levinson's (2000) presumptive meanings for example in Noveck and Sperber (2004).

Now, it has to be remembered that so far we have only plausible hypotheses, theoretical arguments, and very preliminary attempts at experimental evidence in support of the model proposed in Fig. 1. What seems to be certain, though, is that a model on which various sources of meaning information interact is in principle correct. It is also certain that there are shortcuts through conscious processing of information coming from these sources. We recognise two types of such shortcuts which we call default interpretations. In the CD type, one can discern very clear alternative readings, such as referential and attributive readings of descriptions, inclusive or exclusive readings of disjunction, or *de re* and *de dicto* readings of propositional attitude reports. On the contrary, in the SCD 1 type, enrichments are culturally and socially salient but they merely give a more finely-grained picture of the situation rather than clear alternatives. Social/cultural defaults are more difficult to pinpoint and to formalize in the theory of meaning. It is not clear how much detail one has to add to the basic meaning of the lexical item or the construction within the confines of the propositional content. In other words, the granularity of SCDs is unclear. For example, 'nanny' in (12) may be interpreted as a female nanny or it may

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<sup>9</sup> See Recanati (2004: 38). Incidentally, these defaults are called by Levinson (2000) '*inferences to a stereotype*'!

<sup>10</sup> But see, for example, (23) in Section 5.

be simply left as a concept of a nanny of whatever sex. On the other hand, it may also be interpreted as a female nanny who is young, pretty, musical, strict, or lovable.

(12) We advertised for a new nanny.

As a result, the boundary between SCD 1 and CPI 1 is not clear-cut since we have no independent evidence concerning the presence or lack of an inferential process. To sum up, while cognitive defaults are well motivated by their property of strong, undispersed intentionality, social/cultural defaults have no such characteristic property to recommend them. They are only motivated by the methodological requirement not to postulate inferential processes beyond necessity. They are hardly distinguishable from cases of conscious pragmatic inference, they are simply on the polar end of an ‘inference + salience’ cline. As is observed in Jaszczolt (2005: 56), one can only *assume* the boundary between such social/cultural defaults and social/cultural inference. We do not know where exactly to place it but we want to retain the notion of it in the theory because such a distinction is methodologically desirable and psychologically plausible. In what follows, we will have little to say about SCD 1. CDs, on the other hand, will prove to play an important role in the interpretation of utterances as past or modal.

The main objective of Default Semantics is to construct a plausible algorithm of how all the sources of meaning information indicated by the arrows in Fig. 1 interact. To do so, it questions the assumed priority of the WS source, that is the combination of word meaning and sentence structure. It allows more power to the sources CPI 1, SCD 1 and CD, which better reflects their interaction with WS than the current truth-conditional pragmatics-rich semantics does. But this comes at the price of relaxing the boundary between what is said and what is implicated and abandoning the development of the logical form as a defining characteristic of what is said. In other words, what is said may not always be a development of the logical form of the sentence, but, on some (rare) occasions, it can have an altogether different form. Using Bach’s (1994) example, (13) can now have, say, (13a) as its primary utterance meaning, rather than (13b).

(13) Mother to a little boy, crying over a cut finger: ‘You are not going to die.’

(13a) You shouldn’t worry.

(13b) You are not going to die from this wound.

This is a big step, but, it seems, a feasible one. The primary meaning (what is said, what is explicit, etc.) need not be partially isomorphic with the linguistic meaning. Pace post-Gricean attempts to draw the boundary, best summarized in Carston (1988) and Recanati (1989), there is no compelling reason to restrict what is said to the developments of the logical form provided by WS. The additional strength of this reanalysis is that we obtain a more promising notion of compositionality. We only require the merger representation, rather than the output of grammar (WS), to be compositional. This proposal is compatible with, and can be regarded as an execution of, Recanati's observation:

... the semantics of natural language is not insulationist. (...) [T]he meaning of the whole is *not* constructed in a purely bottom-up manner from the meanings of the parts. The meaning of the whole is influenced by top-down, pragmatic factors, and through the meaning of the whole the meanings of the parts are also affected. *So we need a more 'interactionist' or even 'Gestaltist' approach to compositionality.* Recanati (2004: 132)<sup>11</sup>

The proof will lie in constructing an algorithm for this interactive model of meaning and in having a formalized, compositional theory of such mergers.<sup>12</sup>

The proposed framework attempts to fulfil two main objectives of a theory of discourse meaning, namely providing plausible mental representations of discourse backed by a more formal account of the compositional semantic structure. By locating compositionality on the level of the merger of information about meaning that comes from qualitatively different sources it dissociates formalization from what we can call a 'syntactic constraint' (see Sysoeva and Jaszczolt 2007): the representation of the primary, most salient meaning in a discourse need not constitute a development of the logical form of the uttered sentence but may in some cases depart from it and override it, as in example (13a) above.<sup>13</sup> Like its parent theory DRT (Kamp and Reyle; Kamp

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<sup>11</sup> Our emphasis.

<sup>12</sup> This formalization for a fragment of English was begun in Jaszczolt 2005, using an extended and amended language of Discourse Representation Theory.

<sup>13</sup> This proposal has ample experimental support, see e.g. Nicolle and Clark 1999; Pitts 2005; Sysoeva and Jaszczolt 2007.

*et al* forthcoming), it sees formalization as subordinate to the main goal of providing mental representations of discourse. Like DRT, it would subscribe to Jackendoff's view that a form of conceptual semantics is a superordinate objective and it only makes use of, rather than being a slave to, formal methods (Jackendoff 2002; Culicover and Jackendoff 2005; Hamm *et al* 2006):

‘DRT’s claim that there are features of natural language the analysis of which requires a distinct level of discourse representation is consonant with a cognitive perspective on the nature of natural language meaning: Meaning in natural language manifests itself as the semantic competence of the language user...’

Hamm, Kamp and van Lambalgen (2006: 5-6).

Freeing representations of discourse meaning (merger representations) from the syntactic constraint, Default Semantics makes a further step in the direction of the cognitive perspective. As a result, temporality is freed from the constraints on tense and aspect. These concepts belong to the sentence level, while in Default Semantics all sources of meaning are equally important. We demonstrate below that this framework is particularly well suited to representing temporality in languages in which there is no formal indication of time on the sentence level.

In Default Semantics, we start with the assumption that time is a form of modality in that it constitutes a degree of detachment from what would otherwise be ‘timeless truth’ and ‘certainty’. An operator ACC is used to represent modality. ACC, short for *acceptability*, is an operator on events and states that allows for degrees of strength.  $ACC_{\Delta}^n$  reads as ‘it is acceptable, to the degree  $n$ , that it is the case that...’ where the object on which it operates is an event ( $e$ ) or state ( $s$ ), which are theoretical constructs defined as finely-grained (cf. Kim 1976) and time-independent entities (cf. event types of van Lambalgen and Hamm 2005).<sup>14</sup>

ACC is loosely modelled on the acceptability operator proposed by Grice (2001). Grice attempted a unified account of practical and alethic modality by means of a sentential modal operator *Acc p*: ‘it is rationally acceptable that  $p$ ’. For alethic modalities, he proposed  $Acc \vdash p$  (‘it is acceptable that it is the case that  $p$ ’). ACC, our operator on events and states, is intended as a device that fulfils the same purpose

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<sup>14</sup> The notion of event used in Default Semantics is described at length in Jaszczolt forthcoming.

as the sentential operator *Acc*, of providing a unified treatment of modalities, understood broadly as discussed in Section 2. We have extended its use from alethic and practical modality of Grice’s account, to epistemic, deontic and metaphysical modalities as distinguished in our typology.<sup>15</sup> This move is fully compatible with Grice’s overall objective of using *Acc* as an operator by means of which modality in general is explicated. All of the uses are regarded as degrees of certainty to which the speaker of the utterance can subscribe while uttering the sentence.

Default Semantics uses an adapted and extended language of DRT (Kamp and Reyle 1993; van Eijck and Kamp 1997) and applies it to the merger representations of Fig. 3, that is to the merged output of the sources of meaning WS, CPI 1, SCD 1, and CD. One of such *extensions* is the introduction of the operator ACC. The main *adaptation* is the use of the language for modelling meaning that derives from a variety of sources, where the grammatical form of the uttered expression is treated on a par with, and hence can be overridden by, the output of any of the other sources, as was discussed in example (13) above. This view will allow us to represent the cases where there is a mismatch between the tense of the sentence and the temporality expressed by the utterance of this sentence, such as the narrative present (called here past of narration) that uses present verb forms for expressing the past.

### 3. *The Modality of the Past: Evidence from English*

Merger representations that make use of ACC clearly represent the shared perception of (14) as stronger than (15), and (15) in turn as stronger than (16) with respect to the commitment to the eventuality described in the sentence.

- (14) Tom went to London yesterday. (simple past)
- (15) Tom would have gone to London by then. (epistemic necessity past/inferential evidentiality)
- (16) Tom may have gone to London yesterday. (epistemic possibility past)

On the other hand, the use of the past of narration as in (17) seems to signal the degree of commitment that is similar to that in (14).

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<sup>15</sup> And their sub-categories, such as inferential subsumed under epistemic.

- (17) This is what happened yesterday. Tom goes to London, meets Mary at the station, and says... (past of narration)

We can represent this gradation as a gradation of the informative intention with which the utterance was uttered. The cline will then approximate the one presented in Fig. 4, with the proviso that other ways of expressing the past are also possible in English and would have to be included in order to obtain a full typology. Epistemic necessity past and epistemic possibility past would also have to be further spelled out in order to show the variety of constructions they subsume – and, most importantly, a variety of degrees of intention and modality that is represented within each supercategory. We also have to add a disclaimer to this figure in that the placement of the types of expressions on it is only relative. The absolute, or, even, numerical values ascribed to the forms would have to rely on extensive empirical evidence and be determined by clear criteria such as frequency of use, comparison with the main use to which the particular form is put, and so forth. SP stands for ‘simple past’, PN for ‘past of narration’, INP for ‘inferential necessity past’, and EPP for ‘epistemic possibility past’.

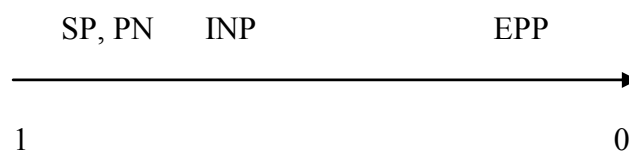


Fig. 4. The Past: Degree of informative intention

Similarly, we can represent the relative degree of detachment from the situation described in the proposition expressed, or, in other words, the degree of modality. The strongest informative intention (the strongest commitment) from Fig. 4 will now correspond to the weakest modality. Or, in other words, the greatest detachment (modality) corresponds to the weakest commitment, and hence the scale will have to be reversed as in Fig. 5.

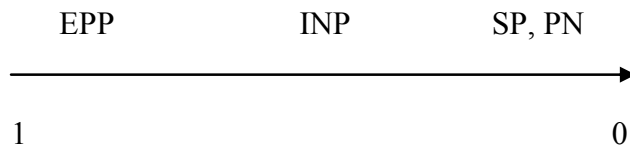


Fig. 5. The Past: Degree of modality

All these types of expressing the past can be easily represented in merger representations of Default Semantics. To repeat, Default Semantics models the merger of information coming from a variety of sources and the representations are not constrained by the grammatical structure of the uttered sentence. For analysing the semantics of temporal expressions, this feature of the theory has obvious advantages in that the use of a simple present form to express futurity or pastness does not pose a difficulty. It is considered to be a departure from the default way of using the form but this departure can be accommodated through the interaction of WS and CPI, as in Fig. 6. Fig. 6 is a merger representation for a fragment of (17): ‘Tom goes to London’, with past-time reference. In Fig. 6,  $x$  and  $e$  stand for discourse referents (individual and event respectively), and square brackets mark the material that comes from the source of information indicated by the subscript. In the semantics (see Jaszczolt 2005),  $\Delta$  was defined as epistemic:  $\Delta = \vdash$ , and the superscript  $pn$  stands for ‘past of narration’. In other words, the degree of ACC is represented as that characteristic of  $pn$ . The condition  $[\text{ACC}_{\Delta}^{pn} e]_{\text{WS}, \text{CPI } 1}$ , for example, has to be read as ‘It is acceptable to the degree  $pn$  that it is the case that  $e$ ’, where the sources of information are word meaning and sentence structure (WS), that is the structure of the uttered sentence, as well as conscious pragmatic inference<sub>1</sub> (CPI 1, see Fig. 3) that operates on this output of the lexicon and grammar and ensures that the present tense verb form is understood as used for past-time reference.

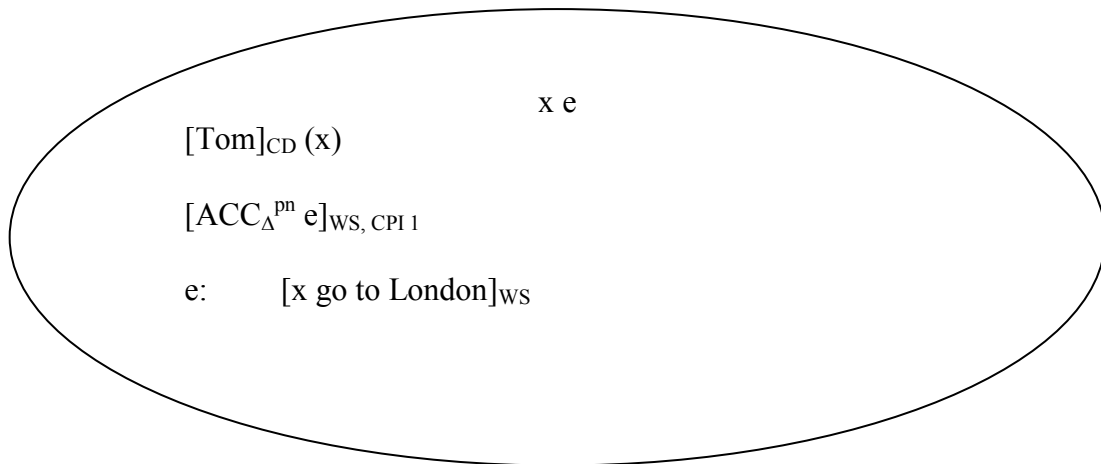


Fig. 6. Past of Narration: Merger representation for ‘Tom goes to London.’

By comparison, the expression of the past by means of the past tense form of the verb is guaranteed by the grammatical form alone: the default use of simple past is, naturally, to convey past-time reference. The meaning of sentence (14)<sup>16</sup> is given by the merger representation in Fig. 7. the subscript CD (‘cognitive default’) signals that ACC of the degree ‘sp’ (‘simple past’) is used in its default sense.

<sup>16</sup> Or, strictly speaking, the *utterance* of sentence (14) in that merger representations model the meaning of utterances.

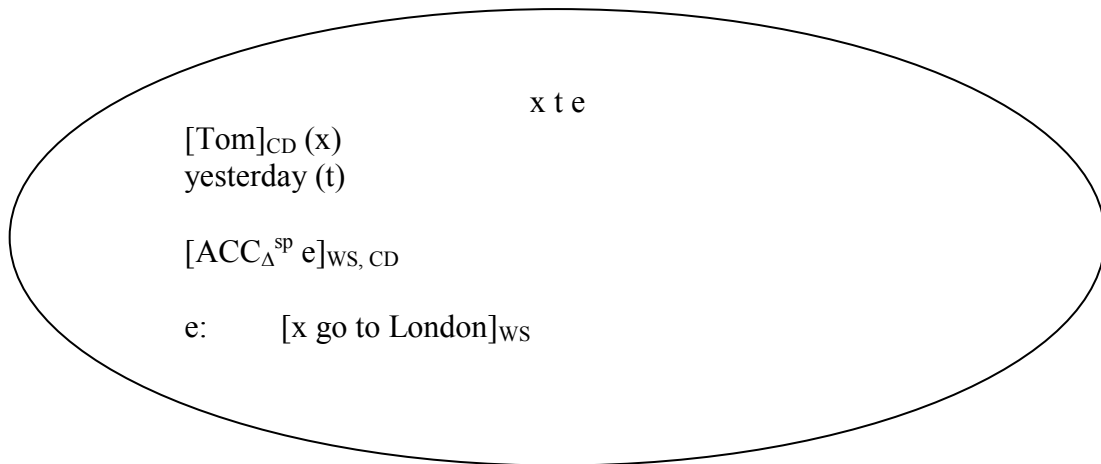


Fig. 7. Simple Past: Merger representation for (14), ‘Tom went to London yesterday’

We can tentatively conclude on the basis of the analyses of these two examples of a standard and non-standard (CD and CPI) ways of conveying the past in English that Default Semantics provides a framework for a unified account for various degrees of modal detachment, whether they are overtly encoded in the lexicon or grammar or conveyed by pragmatic means. The modal operator ACC accounts for them all, rendering them as degrees of departure from full certainty about the event or state at stake. The analysis of the ways of expressing past-time reference in English, combined with the different degrees of modal detachment they can convey, exemplifies the advantages of a theory of meaning that accounts for the interaction of the grammatical and lexical properties of the words and sentences used with the information about meaning that comes from other sources, such as the awareness of the typical, presumed interpretation and the processing of the context and background knowledge. The notion of compositionality is amended accordingly, to provide for this interaction of the outputs of various sources of information about meaning.<sup>17</sup> In the following sections we apply this theory to a language in which expressing temporality and modality is much more reliant on pragmatic processing than it is in English. In Thai, formal indicators of time such as markers of tense and aspect are

<sup>17</sup> We have accepted that events are arguments of predications. Next, the relational semantics can be built by analogy to that for predication, as was presented in Jaszczolt (2005: 172).

largely optional. Relying on word meaning and sentence structure alone would result in a multitude of possible translations of a Thai sentence into English. In the remainder of this paper, we concentrate on the marker *dlayIII*<sup>18</sup> in Thai, which can be used as an indicator of past tense or modality. We present a unified analysis of *dlayIII* as a modal marker, accounting for its default use as a past-tense indicator and its other non-default modal uses by utilizing the interaction of the sources of meaning information that contribute to the merger representation.

#### 4. Possible uses of *dlayIII*

In Thai, *dlayIII* can have both lexical and functional meanings. It may appear as the only verb in an utterance, where its lexical meaning is ‘receive’, as shown in (18).

- (18) m3ae:r3i:I dlay1II c1otm3a:y  
 Mary receive letter  
 Mary received the letter.<sup>19</sup>

*DlayIII* may also behave like an auxiliary. It is this use that is of interest to us in this paper. It can either immediately precede or immediately follow the verb phrase. In this section, we demonstrate that the semantics of the auxiliary-like marker *dlayIII* is sensitive to its verb-initial or verb-final position.

When *dlayIII* precedes the verb phrase, the sentence can be interpreted in two ways, as shown in (19). ‘Gremlin’ is the name of a cat.

- (19) k1r3eml3in dlay1II c1ap ng3u:  
 Gremlin *dlayIII* catch snake  
 (a) Gremlin *was able to catch* a snake (and he caught it).  
 (b) Gremlin *had an opportunity to catch* a snake.

<sup>18</sup> We use here the transliteration system from Diller (1996). In summary, vowel phonemes are transliterated as (high) *i, u', u*, (mid) *e, oe, o*, and (low) *ae, a, o'*; three diphthongs are *ia, u'a*, and *ua*; long vowels are transliterated with a colon; the tone class of each syllable-initial consonant is specified by numbers 1, 2, and 3; and tone markers are indicated by I and II.

<sup>19</sup> The translation given is the most natural reading in terms of tenses. Other temporal interpretations are also possible, e.g. ‘Mary has received the letter’, ‘Mary is receiving the letter’ and ‘Mary is going to receive the letter’.

The two readings differ in the following ways. In (19a), Gremlin is described as having had an opportunity to catch a snake and having caught one. However, the eventuality of Gremlin catching a snake might not have happened as far as (19b) is concerned. When *dlayIII* immediately follows the verb phrase, as in (20), the utterance also has two possible interpretations. Note that although the English translations for (19a) and (20a) are identical, the latter is different from the former in that it refers to Gremlin's physical, mental and circumstantial ability to catch a snake, rather than restricted to Gremlin's opportunity, as (19a) is. On the other hand, (20a) indicates that Gremlin did catch a snake while (20b) only speaks of its snake-catching ability, in which case the meaning of deontic or dynamic possibility of *dlayIII* is clear.

(20) k1r3eml3in c1ap ng3u: dlay1II  
 Gremlin catch snake *dlayIII*

- (a) Gremlin *was able to catch* a snake (and he caught it).
- (b) Gremlin *can catch* a snake (if he wants to).

It can be seen that the verb-initial or verb-final position of *dlayIII* brings about a slight change in its meaning. When *dlayIII* occurs immediately before the verb phrase, its meaning focuses on circumstantial ability, or opportunity. When it immediately follows the verb phrase, it is not limited to circumstantial ability but includes physical and mental powers. This semantics of *dlayIII*, where its meaning is conditional on its position immediately before or after the verb phrase, is also the case when the proposition is negated, where two interpretations are again possible, as (21) and (22) illustrate.

(21) k1r3eml3in m3ai1I dlay1II c1ap ng3u:  
 Gremlin NEG *dlayIII* catch snake

- (a) Gremlin *was not able to catch* a snake.
- (b) Gremlin *did not have the opportunity to catch* a snake.

(22) k1r3eml3in c1ap ng3u: m3ai1I dlay1II  
 Gremlin catch snake NEG *dlayIII*

- (a) Gremlin *was not able to catch* a snake.

- (b) Gremlin *cannot catch* a snake.

While (21) aims to describe Gremlin's inability to catch a snake in terms of lack of opportunity, only the senses of physical and mental ability of *dlayIII* are present in (22). This explains the difference between (21a) and (22a), despite their indistinguishable English translation. What (21a) communicates is the eventuality in which Gremlin was not able to catch a snake because he did not have the opportunity to do so, that is, he did not try to catch a snake at all. But in (22a), Gremlin is depicted as attempting to catch a snake but failing to catch one.

Taking into account all of its possible uses above, our review of previous treatments of *dlayIII*, whereby it is analysed as either a past tense or a modal marker, finds that they are not comprehensive. In Kanchanawan's (1978) and Supanvanich's (1973) approaches, *dlayIII*, when immediately preceding the verb phrase, is classified as a past tense marker. In the verb-final position, Kanchanawan (1978) identifies it as encoding ability or permission. This is in line with Maunsuwan's (2002) framework, where *dlayIII* in the verb-final position is considered similar to the modal verb *can* in English, which expresses either dynamic modality (i.e. ability) or deontic modality (i.e. permission). In Supanvanich (1973), where only the verb-initial position of *dlayIII* is examined and *dlayIII* is specified as a tense marker, which may be applicable to (19a) and (21a), its clearly modal meaning, as in (19b) and (21b), is left unanalysed. In Muansuwan (2002), where only *dlayIII* in the verb-final position is analysed as a modal marker, its temporal meaning, which seems to be present in (20a) and (22a), is unaccounted for. While Kanchanawan (1978) is apparently the most explanatorily adequate among the three because both verb-initial and verb-final positions of *dlayIII* are explored, *dlayIII* receives different treatments in different positions. According to Grice's (1978) Modified Occam's Razor, which states that senses (linguistic meanings) are not to be multiplied beyond necessity, it is methodologically preferable to come up with a unified account of *dlayIII* both in the verb-initial and verb-final positions. Such an analysis is proposed below.

##### 5. A unified account of *dlayIII*

In our approach, *dlayIII* is classified as a modal marker that comes by default with the past time interpretation. On this analysis both the modal and temporal readings of *dlayIII* are accounted for. It is shown below that *dlayIII* (i) has modal meaning in

both of the verb-initial and verb-final positions and (ii) does not encode the past time reference. Pastness is simply its default interpretation of the cognitive default type, as defined in Default Semantics. To repeat, a cognitive default (CD) is a salient interpretation that arises without a need for conscious pragmatic inference and sometimes does not arise when it is blocked by the context.

In the verb-initial position, as in (19), *dlayIII* has the dynamic modality meaning in the sense of opportunity. This analysis is supported by Palmer's (2002) and Austin's (1961) observations about this type of modality. According to Palmer (2002), dynamic modality has to be interpreted not only in terms of the subject's physical and mental powers but also circumstances that affect the subject. Similarly, Austin (1961) contends that to say 'he can' in the full sense is to say not only that he has the ability but also that he has the opportunity, and that dynamic *can* may be used in the restricted senses of merely ability or opportunity. Of the two interpretations of (19), (19a) is more informative than (19b) as it refers to an eventuality where a snake was caught. In terms of Default Semantics, it can be said that (19a) is of stronger communicative, informative and referential intentions. In other words, (19a) is the default reading of (19). As for when *dlayIII* occurs immediately after the verb phrase, as in (20), the modal meaning it expresses is either deontic or dynamic possibility. Interpretation (20a) is more informative as it refers to an eventuality of Gremlin catching a snake before the utterance time while (20b) simply refers to Gremlin's ability to catch one. Like (19), (20) has (20a) as its default interpretation. From (19) and (20), it can be seen that their default interpretation (19a and 20a) is one that comes with the past time reference and entails the non-default sense (19b and 20b).

Comparing (19) and (20), it can be clearly seen that defaults are obtained post-propositionally. In (19), where *dlayIII* occurs immediately before the verb phrase, in the middle of the utterance, both interpretations have the past time reference. But when *dlayIII* immediately follows the verb phrase and is sentence-final, as in (20), both past and present readings are accessible. That is, defaults are neither lexical nor local. Strictly speaking, the marker *dlayIII* itself does not give rise to the past time reference by default. If that was the case, *dlayIII* in sentence-medial and sentence-final positions would both trigger pastness and the present time interpretation would not be allowed.

We now turn to give evidence from the corpus of data to verify that the temporal meaning of *dlayIII* is its default and not encoded meaning. The background of this conversation is as follows. Gremlin is a cat with black paws. Speaker A was told that cats with black paws could catch snakes and wanted to convey this information to speaker B by saying (23a). (23a) is exactly the same as (20) above. That is to say, (23a) has two interpretations. *DlayIII* can refer to dynamic modality, or ability, as in (23aii), while in (23ai), it gives rise to the past time reference. It was claimed earlier that (19ai) is the default meaning of (23) because it conveys stronger communicative, informative and referential intentions. In other words, (23ai) is more informative than (23aii) in that the speaker is understood to refer to an eventuality of Gremlin being able to catch a snake before the utterance time and catching one. But (23aii) does not refer to any particular eventuality, only the fact that Gremlin has an ability to catch a snake.

- (23) (a) A: k1r3eml3in c1ap ng3u: d1ay1II  
 Gremlin catch snake *dlayIII*  
 (i) Gremlin *was able to catch* a snake (and he caught it).  
 [B's recovered meaning]  
 (ii) Gremlin *can catch* a snake (if he wants to).  
 [A's intended meaning]
- (b) B: n3ai1 ng3u:  
 where snake  
 Where is the snake?
- (c) A: k1r3eml3in m3ai1 d1ay1II c1ap ng3u:  
 Gremlin NEG *dlayIII* catch snake  
 Gremlin did not have the opportunity to catch a snake.
- (d) A: k1r3eml3in s2a:m3a:t c1ap ng3u: d1ay1II  
 Gremlin can catch snake *dlayIII*  
 Gremlin can catch a snake (if he wants to).

We know from the background information that A's intended meaning was (23aii). However, Speaker B's answer in (23b) clearly shows that she interpreted (23a) as (23ai). This in turn shows that (23ai) is a more salient interpretation. The hearer thought the speaker had this interpretation in mind even when the speaker meant the

other. Next, (23c), which means Gremlin did not have the opportunity to catch a snake, demonstrates that when the proposition is negated, the past time interpretation of *dlayIII* is also possible and salient. Lastly, (23d) illustrates that *dlayIII* may follow a verb phrase beginning with the modal *s2a:m3a:t* ‘can’. In the presence of the modal, the past time reference, usually triggered by *dlayIII*, does not arise; the temporal interpretation is the time of utterance. To conclude, while (23abc) show that the past time reference of utterances containing *dlayIII* is more salient, (23d) suggests that the temporal meaning is unlikely to be part of its encoded interpretation. The solution provided by Default Semantics is to regard the past temporal sense, possibly prompted in the presence of *dlayIII*, as the default reading of an utterance containing the marker, which sometimes does not arise.

Another piece of evidence to support the claim that the past time reference of an utterance containing *dlayIII* sometimes does not arise comes from one of the authors. Srioutai was Speaker A in the conversation in (23). When she uttered (23a), she had only one interpretation in mind, namely, (23aii), and at that moment did not think about (23ai), the other interpretation, with the temporal default, as an alternative reading of (23). Just when Speaker B asked where the snake was, she realised that there was another possible meaning to the utterance. This goes to show that sometimes the past temporal interpretation of an utterance containing *dlayIII* does not arise. Unlike other default accounts where a default reading is said to arise invariably and then undergo cancellation in certain contexts, Default Semantics asserts that defaults simply do not arise in some cases. The proposition that the past temporal reading of an utterance containing *dlayIII* does not arise in certain contexts also corroborates the claim that the past time reference is not part of the linguistically encoded meaning of *dlayIII*. This is why the analysis of *dlayIII* as a past time or past tense marker is not a convincing one.

However, from the point of view of the hearer, the conversation in (23) represents a rare situation where a default interpretation is retrieved and cancelled. The temporal default of pastness in (23a), captured in (23ai) and recovered by the hearer, i.e. Speaker B, is explicitly withdrawn by the speaker’s denial in (23c). In this particular case, the cancellation is a result of the mismatch between what was intended, what it was in reality, and what was recovered. Typically, cognitive defaults are intended and recovered by the model speaker and hearer; or else, they do not arise.

There is still another piece of evidence to support the view that the temporal reading of *dlayIII* is not its encoded meaning. Speaker A, who is a competent native speaker of Thai, used (23a) instead of (23d) to convey her intended meaning of dynamic modality. This was the case despite that fact that (23a) could have caused misunderstanding, which it did, and (23d) would have been more effective. This is interesting although it may seem unreasonable to use a *dlayIII* construction in a non-default sense. It precisely illustrates that more than one possible interpretation is available and that the past temporal meaning of (23a), captured in (23ai) and recovered by Speaker B, is not always there. If it was, it would be the encoded meaning, not the pragmatic one.

Now we will demonstrate how merger representations may be constructed for utterances containing the marker *dlayIII*. To recall, a merger representation is a meaning representation in Default Semantics which a model hearer is predicted to create in the process of utterance interpretation. It is where the four sources of meaning, sentence structure and word meaning (SW), cognitive default (CD), social/cultural default (SCD 1) and conscious pragmatic inference (CPI 1), are treated on an equal footing. This means that no priority is given to any of these sources of information. Merger representations will be constructed below for *dlayIII* utterances in their default interpretation of pastness and in their non-default sense. In this latter circumstance, the interpretation of an utterance with *dlayIII* is said to be a departure from the default. The departure from the default in *dlayIII*'s case makes use only of its bare encoded meaning without temporality, which is dynamic modality.

Let us look at the default case first. Fig. 8 shows the merger representation of (23a) when the utterance has its default reading of the past time reference triggered by *dlayIII*.

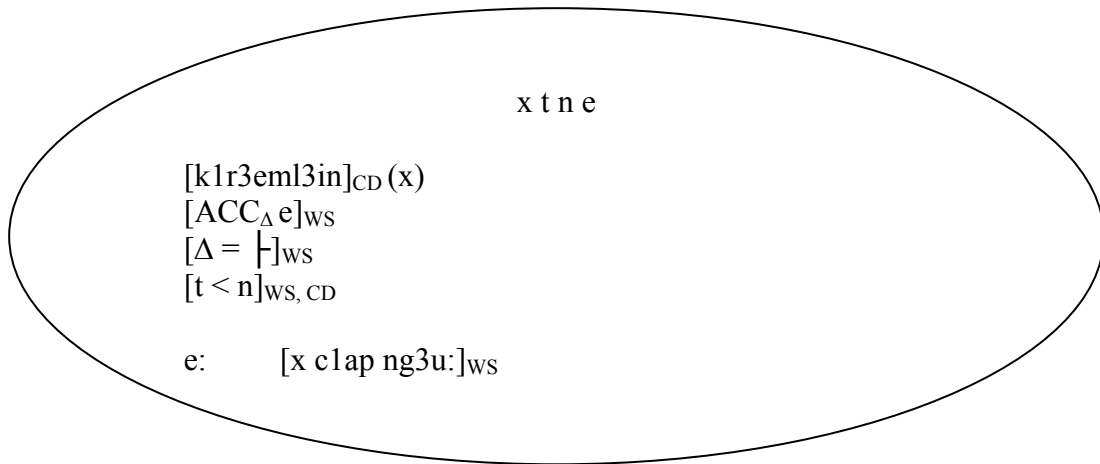


Fig. 8: The default meaning of an utterance *k1r3eml3in c1ap ng3u: dlay111* (Gremlin catch snake *dlay111*; ‘Gremlin was able to catch a snake (and he caught it).’) <sup>20</sup>

In the merger representation in Fig. 8 the discourse referent *x* refers to Gremlin, *t* to the eventuality time; *n* is now or the utterance time, and *e* the eventuality. The subscripts CD and WS indicate the source of the material in the square brackets. The second line reads: the proper name *Gremlin* by cognitive default refers to an individual *x*. The modal meaning of *dlay111* is shown by the modal operator ACC. ACC<sub>Δ</sub> e is to be read as ‘it is acceptable to the speaker that it is the case that e’. The type of modality expressed by *dlay111* in this example is dynamic modality, which may be subsumed under epistemic (see Biber et. al. 1999: 465). It can thus be symbolised by ⊢ ‘it is the case that’, the symbol used by Grice for alethic, and extended by Jaszczolt (2005) to epistemic modality, which is a related, but logically weaker, so to speak, type of modality than alethic. This information is signalled by the presence of *dlay111* in the utterance, which explains the presence of WS. Also, *dlay111*, by cognitive default, gives rise to the past time reference. This is rendered as ‘t < n’, or ‘the eventuality time *t* precedes the utterance time *n*’. The temporal default t < n is specified to be the output of WS and CD.

<sup>20</sup> Note that the MR of a Thai utterance lacks formal representations of tense such as *sp* (see Fig. 7), reflecting that, unlike in English, there is no grammatical indication of temporality in the language. Instead, Δ has to be specified for the type of modality by ⊢ to capture the meaning of the modal marker *dlay111*.

We now turn to a departure from the default meaning of utterances with *dlayIII*, which is its bare encoded meaning of modality with no temporality, as shown in (23aii). The merger representation of (23aii), where the past temporal default of *dlayIII* does not arise, is provided in Fig. 9.

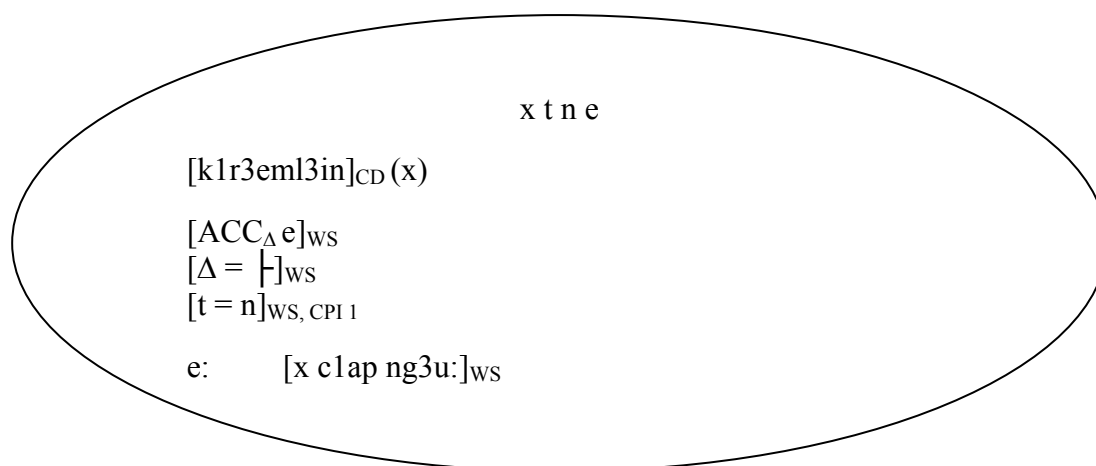


Fig. 9: A departure from the default of an utterance *k1r3eml3in c1ap ng3u: dlayIII* (Gremlin catch snake *dlayIII*; ‘Gremlin can catch a snake.’)

Similarly, discourse referent  $x$  refers to Gremlin,  $t$  to the eventuality time;  $n$  is now or the utterance time, and  $e$  the eventuality. The proper name *Gremlin* by cognitive default refers to an individual  $x$ . The modal meaning of *dlayIII* is shown by  $ACC_{\Delta} e$ , where  $\Delta$  is specified to be of the dynamic modality type by  $\vdash$ , the same symbol Grice (2001) and Jaszczolt (2005) use for alethic/epistemic. This information is signalled by the presence of *dlayIII* in the utterance, which is indicated by WS. The eventuality time is at the same time as the utterance time, so it is expressed as ‘ $t = n$ ’, or ‘the eventuality time  $t$  equals the utterance time  $n$ ’. This eventuality time is given by WS and CPI 1. That is to say, the present time reference,  $t = n$ , is the output of the sources WS and CPI 1. It is represented as a departure from the cognitive default of *dlayIII*. WS accounts for the dynamic modality of *dlayIII* while CPI 1 produces the inference to the dynamic possibility at present from the WS of *dlayIII* and blocks the possible past temporal default of the utterance.

Lastly, Fig. 10 illustrates a circumstance in which the temporal default of pastness of an utterance containing *dlayIII* is hindered when it co-occurs with the modal *s2a:m3a:t* ‘can’, as in (23d), in the conversation (23).<sup>21</sup>

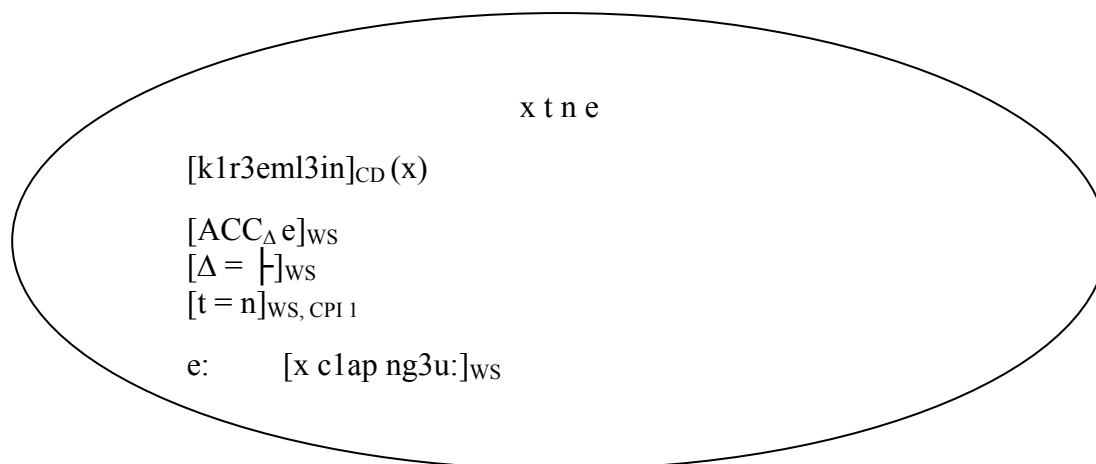


Fig. 10: A departure from the default of an utterance *k1r3eml3in s2a:m3a:t c1ap ng3u: dlayIII* (Gremlin can catch snake *dlayIII*; ‘Gremlin can catch a snake.’)

Unlike that in Fig. 9, ACC here does not only capture the modality of *dlayIII* but also of the modal *s2a:m3a:t* ‘can’. The past temporal default  $t < n$  does not arise, but the departure from the default  $t = n$  is accounted for by WS, which is the dynamic possibility of *dlayIII* and the modal *s2a:m3a:t* ‘can’, and CPI 1, which produces the inference to the dynamic possibility at present by combining the WS of *dlayIII* with the meaning of the modal *s2a:m3a:t* ‘can’.

## 6. Concluding remarks

We demonstrated in this paper that semantic representation of past-time reference in English and in Thai requires a theory that would account for the combination of information about temporality that comes from various sources. There are ways of expressing past-time reference that do not rely on an overt grammatical or lexical marker of temporality but instead use information from standard, presumed meaning (default) or pragmatic inference in order to determine the temporal location of the

<sup>21</sup> On condition that (23d) is discourse-initial, two interpretations can be obtained, just like (23a).

situation. We used examples from English and from Thai in order to show that, although English sentences normally come with tense and aspect markers while in Thai both grammatical markers of temporality are optional, similar problems with determining the time of eventuality arise in both languages. We hope to have shown that the past-time reference in Thai may be conveyed by the auxiliary-like item *dlayIII* and that pastness is not the encoded meaning of the marker because there are cases where the past time interpretation does not arise. We also analysed selected problematic examples with past-time reference in both languages in the framework of Default Semantics and conclude that this framework can easily accommodate sentences without overt grammatical indicators of time in that its founding principle is the representation of the merger of information about meaning that comes from various sources which can add to, or even overcome, the information provided by the grammar and the lexicon.

The ‘big picture’ that emerges for a theory of meaning is this. While compositionality is a necessary prerequisite for any theory of meaning, compositionality should not be seen as an aim that would justify complicating formal methods in order to fit natural language into the mould created for formal languages of deductive logic. Instead, we repeat after Jackendoff (2002: 293) that there is no ‘strictly linguistic meaning’ and that constructing mental representation of discourse has the status of the fundamental objective. But the task of a theory of meaning is not fulfilled until the interaction of sentence structure with the results of pragmatic inference, background knowledge, beliefs, perception, etc. are captured more formally as an algorithm for human communication.<sup>22</sup> Temporality in English and Thai is a good example on which this need for merging meaning coming from different sources can be demonstrated and taken forward.

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<sup>22</sup> It is worth noting that merger representations of Default Semantics schematically given in Fig. 3 above are not incompatible with the interfaces of Jackendoff’s conceptual semantics: see Fig. 9.1 in Jackendoff (2002). However, the reliance on intentionality separates Default Semantics from Jackendoff’s construal and makes it akin to Fodor’s representational semantics (e.g. Fodor 1998).

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