

The Modal Supervenience of the Concept of Time

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For the section *Supervenience*
word count: 2,496

Abstract

The concept of time (here: A-theory time, McTaggart 1908) is generally acknowledged to be only a partial reflection of real time (here: B-theory time). Multiple arguments, mostly from the phenomenological tradition of Husserl and Heidegger, have been used for the explanation of this thesis. In this paper I focus on a different kind of supervenience, namely on the dependence, in the sense of constitutive conceptual and semantic qualities, of internal time on epistemic modality and thereby on degrees of detachment from certainty that temporal thoughts include and temporal expressions convey. I discuss several arguments and some linguistic evidence in support of the thesis of modal supervenience and conclude with a question concerning the possible conceptual and semantic *identity* of epistemic modality and temporal reference.

Partial arguments in support of the supervenience of the concept of time on the concept of degrees of probability are ample. Moens and Steedman (1988) and Steedman (1997) contend that temporality is supervenient on the concepts of perspective and contingency and that tense and aspect systems are founded on the same conceptual primitives as evidentiality which, by our definition, is a concept overlapping with that of epistemic modality. Slightly more remote from this thesis is that of van Lambalgen and Hamm (2005) who argue that the past, the present and the future are linked by means of the imposition of goals, planning, and causation. Temporality supervenes on what is intended, desired as *present*, as well as on the cause-and-effect relation between events and states that are arranged on the line with relations such as earlier-than, later-than, or overlap. Finally, Nuyts (2006: 19) proposes that modality occupies a higher place than time in the hierarchy of semantic categories, which means that it is of a higher level of abstraction.

It is by no means a new idea that time and modality are interconnected. But it is much less often claimed, and much more controversial, that the concept of time supervenes on the concept modality or that time *is* modality. Nevertheless, we can find plenty of arguments in support of this view if we are prepared to look through different domains, including the behaviour of languages from diversified language families, and collect all extant information. In this paper I assess some arguments and evidence according to which time and modality are related by supervenience relation and end with speculating on the possibility that they are one conceptual category.

Peter Ludlow (1999) argues that the future is predictability or potentiality, ‘disposition of the world’, and hence is to be regarded as a modal concept. He analyses the future-tense morphemes in Spanish as consisting of an *irrealis* marker *ar* and a ‘future’ ending. For example, *hablaré*, ‘I will speak’, is analysed not as *habl + aré*, but instead *habl + ar + é*. Moreover, as he points out, in Italian, to express futurity, one standardly uses a present tense form (e.g. *vado*, ‘I go’) reserving the future tense form (*andrò*, ‘I will go’) for situations of lesser probability or uncertainty.

Similarly, in English, futurity can be expressed with any of the forms listed as (1)-(4), where the present-tense forms in (1) and (2) express higher certainty (see Jaszczolt 2005, ch. 6).

- (1) Peter goes to London tomorrow morning.
- (2) Peter is going to London tomorrow morning.
- (3) Peter is going to go to London tomorrow morning.
- (4) Peter will go to London tomorrow morning.

Such scales pertaining to degrees of speaker's commitment to the proposition and the degrees of certainty with which the speaker issues a judgement testify to a very intimate connection between time and modality. And since these scales are scales of modality, modality is the basis for temporal supervenience in the case of expressions of the future.

In spite of the rather unquestionable unreal character of the future, not all languages express it as equally 'unreal'. As de Haan (2006: 41-42) points out, a Native American language Caddo treats the future as a *realis* category. The future morpheme *-ʔaʔ* is combined with the *realis* prefix *ci-* as in (5):

- (5) cífbáw-ʔaʔ
 ci yi bahw ʔaʔ
 Realis 1Sg see *Fut*
 'I will look at it.'

In a Californian language Central Pomo, on the other hand, the future can be accompanied either by *realis* or by *irrealis*, depending on the speaker's judgement concerning the degree of probability of the described event (see *ibid.*: 42). This freedom of combination with *realis* or *irrealis* constitutes a strong argument in favour of the underlying modal character of the future: states of affairs are described as more, or less, certain. This explanation is further supported by the fact that there are languages in which there is a choice between different future morphemes to express different degrees of certainty (see *ibid.*: 50 for examples). The pairing with the *realis* category in Caddo, on the other hand, is more difficult to explain without a more detailed analysis of the devices available in that language. It may, for example, signal that in different languages there is a different degree of reliance on the epistemology of time. When the degree is high, the internal, psychological time and the *irrealis* prevails; when it is low, the ontology of time and the B series surface out as *realis*. The fact that generally in languages of the world the future pairs with modality (van der Auwera and Plungian 1998) appears to testify to the strong cognitive reasons for the predominance of the internal time.

The past is governed by the same principle of supervenience on modality. Although it is a little more difficult to see because, unlike the uncertain future, the past may seem to consist of what 'actually happened' and is subject to judgements of truth or falsity, the supervenience is there nevertheless. Ludlow (1999: 160) points out that 'in most non-Indo-European languages the so-called past is generally just some form of aspectual marker'. Similarly, in English the past-tense morpheme *-ed* is the leftover from a perfect aspectual marker. Next, past tense is used in counterfactuals to express an alternative present state of the world (or a certain *now* of an alternative possible world) as in (6).

- (6) If I *had* more time, I would meet my friends more often.

Ludlow provides pertinent references to the accounts on which the past is taken to mean ‘remoteness’, ‘remoteness from reality’, and ‘exclusion’. But here is where Ludlow’s analysis differs from mine. For Ludlow, states of affairs can be ‘remote in time’ or ‘remote in possibility’. Hence, he speculates that there is ‘some deeper third element [that] underlies both tense and counterfactual modality’ (p. 161). He proposes evidentiality as this underlying parent category: all past-tense morphology is morphology of evidential markers. This recourse to evidentiality is, however, superfluous when we redefine epistemic modality as inferential evidentiality. Evidence that we have *now* about what happened *in the past* allows us to use indicators of the past tense but by the same token we are detaching ourselves from the *now* in the sense of diminished probability as compared with that of a statement in the present tense. Hence, the situation with the past is analogous to that with the future described above: the truth of *now* is given *in* and *by* the *now*: the truth about the future and about the past is given *in* the *now* and by what we *now* remember about the past, or anticipate about the future (see Dummett 2004). This is how the modal detachment is created and cannot be escaped. De Haan (2006: 51) reports on the reconstruction of the tense-aspect-modality system in Proto-Uto-Aztecan where the *irrealis* morpheme is the same as the past tense morpheme and both are founded on an abstract conceptual feature called *dissociative*: past tense marks a dissociation from *now*, just as *irrealis* marks a dissociation from reality. This construal derives from the Aristotelian view according to which statements can be true or false even though we may not be in a position to know the truth value (cf. Kaufmann *et al.* 2006). Varieties of this view include evaluations of anticipations and memories discussed below or versions of temporal logic where representing the past as modality has also been successfully attempted. Thomason (2002) proposes to view pastness as *historical necessity* founded on the model of forward-branching time: with the passage of time, *historical possibilities* diminish monotonically.

Last but not least, it is necessary to mention languages in which formal indicators of time are optional. In such languages we should investigate not only expressions of time but also the semantic category of temporality which is often realised through pragmatic inference. In Thai, both tense and aspect can be left out of the sentence and the specification of these can be left to the addressee’s pragmatic inference. For example, *f3on t1ok¹* (‘rain fall’), can express a wide range of temporal and modal commitments from ‘it is raining’, through ‘it was raining’ and ‘it will rain’, to ‘it might rain’. When a modal marker is present, its meaning can also vary and the contextual accommodation normally allows the addressee to recover the speaker’s intentions without giving rise to ambiguity. A lexical item *d1ayIII*, with the lexical meaning ‘to receive’, can perform the function of a modality marker expressing ability. Sentence (7) can be translated as a statement of Gremlin’s (the cat’s) ability but the temporal location is not specified, as (7a) and (7b) indicate.

- (7) k1r3eml3in c1ap ng3u: d1ayIII
Gremlin catch snake *d1ayIII*

- (7a) Gremlin *was able to catch* a snake (and he caught it).

¹ 1,2,3 and I, II stand for tone markers.

(7b) Gremlin *can catch* a snake (if he wants to).

(from Srioutai 2006: 109; see also Jaszczolt and Srioutai forthcoming.) Contextual information allows the addressee to opt for (7a) or (7b). In addition, as Srioutai (2006) demonstrates, *dlayIII* comes with a salient, preferred meaning of past tense. In other words, when context does not suggest otherwise, (7) is taken to mean (7a). Pastness is the default, but cancellable, interpretation. It is not encoded, it is merely recovered as the preferred and more common interpretation. Similarly, a Thai word *cla*, normally translated as the English *will*, is not necessarily a marker of futurity. Just as the English *will*, *cla* can assume the meaning of epistemic necessity (as in 8) or the habitual meaning, also called dispositional necessity (as in 9).

(8) m3ae:r3i:I kh3ong cla d1u: '1op1e:r3a:I y3u:I t1o'n3i:II
Mary may cla see opera Prog now

'Mary will be in the opera now.'

(9) b1a:ngkh3r3angII m3ae:r3i:I cla play1 d1u: '1op1e:r3a:I
Sometimes Mary cla go see opera

n3ay2 ch3udw3o'm
in tracksuit

'Mary will sometimes go to the opera in her tracksuit.'

(from Srioutai 2006: 125). Unlike the English *will*, *cla* incorporates readily into the Thai grammatical system and expresses modality with predominant future reference, just as *dlayIII* expresses modality with predominant past reference. This behaviour of modals, combined with the situation in which the language itself does not have an obligatory marking of tense, provides a strong argument for the supervenience of temporality on modality in the sense of conceptual and semantic inheritance: modal detachment is grammaticalized, and temporal detachment follows as defaults or context-driven non-default interpretations.

The past, present and future, the A-theory terms, are terms pertaining to human experience. While in reality time exists but does not flow, for human agents it is the *now* that has the privileged status; I am experiencing the symptoms of flu *now*, I perceive the clock on my mantelpiece *now*, I hear its ticking *as I am writing these words*. It is the privileged status of the *now* that forces us to conceptualize the *not now* not as experience, but as an anticipation or a memory of an experience. To turn to McTaggart (1908: 127) again:

'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 perceptions, I have also the memory of certain other perceptions, and the anticipation of others again.'

Unless they are illusory, perceptions are real and certain. Memories of perceptions and anticipations of perceptions are removed from this certainty to some degree, just as the past and the future are removed from the very central experience of the *now*. In

this paper I considered a selection of arguments in support of treating the semantic category of time as derived from modality. There is only a small step from there to the thesis that internal time itself, i.e. the psychological future, present and past, are modalities. For this step we will have to utilize the premise that semantic categories are a window on conceptual categories – in agreement with the rich tradition in various strands of semantic theory, from broadly defined cognitive (e.g. Jackendoff 2002) to dynamic truth-conditional (Hamm *et al.* 2006). This semantic analysis of temporal expressions, albeit pertinent, is a topic for another occasion (see Jaszczolt forthcoming, ch. 4).

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