

Against the Interval of Assertion

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1. Introduction

The aim of this paper is to show that the introduction of an interval of assertion is unnecessary in a formal, modeltheoretic semantic theory of the tense-aspect system. I use the notion of an “interval of assertion” as referring to a technical device whose specific task is to delimit the extent of the speaker’s commitment with respect to an eventuality – such as the “time of assertion” or “topic time” (cf. Klein, 1994), or the interval of focalisation (cf. Smith, 1991). It will be argued that such a device is redundant, at least if one considers the reasons that have been standardly advanced in order to support such a move.

It will be shown that the central intuitions of these authors can very well be captured without introducing the technical device of an explicit interval, if one sticks with a neo-Davidsonian formalisation (cf. Davidson 1967, Parsons 1990), assuming events as primitives. Since the predictions of one or the other framework seem to be empirically equivalent, I will argue that, for methodological reasons, the conceptually simpler system – which is the one without assertion-time – should be preferred.

Having stated thus the essential claims to be defended, I briefly mention what this article is *not* about, in order to avoid confusion. The introduction of elements like those intervals has lead to (what I think are) important conceptual clarifications, notably a very clear separation between lexical and grammatical aspect. I do not wish to commit to a position according to which there would be no difference between grammatical and lexical aspect. I think that there is indeed such a difference, but I will remain agnostic in this paper as to how such a difference is to be modeled. I do not contest either that an interval such as Assertion-Time – once it has been introduced – could not be used successfully to deal with temporal cohesion of discourse or phenomena of sequence of tense. Yet, as have shown Asher & Lascarides (2003), there are other ingredients to temporal cohesion, like rhetorical relation. Therefore, these intervals might not have the key influence they are sometimes supposed to have (cf. Reichenbach 1948), and maybe, temporal constitution might be treated without explicitly introduced intervals (for a tentative in this direction, cf. de Swart 1999). Finally, I do not claim that one could not give a theoretical status to an interval of assertion in non-model-theoretic approaches, or formal approaches which dispense with λ -calculus.

Interesting as all those points mentioned above are, I have nor the space nor the competency to treat all these issues in a single paper. The very modest subject I intend to investigate is the following: to show how the introduction of an interval specifically dedicated to dealing with assertion has been justified, and to show how these justifications fade away once we use formal (model-theoretic, truth-conditional, event-based) semantics.

2. Is an Interval of Assertion Necessary?

Recent years have seen a number of theories that use in some way the idea of an interval introduced by (grammatical) aspect (cf. Smith 1991, Klein 1994). While in the nineties this idea was an absolute minority position among more formal semanticists, it has since gained much ground there (c.f., e.g., among others, Pancheva (2003), which is one of the first to adopt this move, or Schaden (2009), who spends some effort on trying to justify it).

Before discussing Smith and Klein, I would like to state briefly the consequences of assuming something like an interval of assertion. I think that a correct understanding of the theoretical implications and commitments is a key to understand the success of the interval of assertion in the several formulations that have been provided.

2.1. Consequences of Use of an Interval of Assertion

Tying the notion of (grammatical) aspect to assertion has the immediate effect that (grammatical) aspect becomes an obligatory category, which is not reducible to lexical aspect (also known as *Aktionsart*). The reason is the following: without an interval of assertion, there would be no assertion, and since languages do make assertions, they have a category of (grammatical) aspect. Therefore, every language has some kind of aspect that is encoded in the grammatical system, and not some reduced subset of languages. Thus, aspect becomes OBLIGATORY AND UNIVERSAL.

This assumption itself has three important consequences: first of all, it forces to distinguish in a clear way between *lexical* aspect, that is, the intrinsic properties that come with an eventuality predicate, and *grammatical* aspect, which are the modifications introduced into lexical aspect by the tense-aspect morphology in a given language.

Second, it becomes meaningful to investigate languages without aspectual oppositions, such as modern Hebrew or modern German. Thus, a research program is created – which has lead to the uncovering of data that had not seemed to exist at all.

Third, the cross-linguistic comparison between different aspect-systems in different languages becomes much easier, which is in principle a good thing. However, it comes at a price: this idea infoces considerable

uniformity on how such systems are supposed to work. It is worthwhile to note that the uniformity is not just notational uniformity; adopting a theory of aspect in terms of an interval of assertion involves a commitment as to what grammatical aspect does, and its underlying ontology (i.e., relating the temporal trace of an eventuality to the interval of assertion).

If one would abandon the notion of an interval of assertion, either these consequences would no longer hold, or else, they would have to be justified in a completely new manner. For the first two points, this does not seem to be too difficult. However, it should not be underestimated what the third point entails: first, interval-of-assertion approaches provide a general framework, including an ontology and precise criteria of investigation, for a linguistic domain where it is not that clear what the underlying ontology is or should be. Furthermore, it allows to integrate all progress achieved by mereological approaches on lexical aspect (cf. Krifka 1992, 1998), while also being able to continue earlier, interval-based results (cf., e.g. Dowty 1977).

2.2. Smith's (1991) interval of focalisation

The influential book by Smith (1991) succeeded in establishing a theory of aspect with two sharply distinguished components, namely *Aktionsart* and *view-point aspect*, which corresponds to what I have termed above “grammatical” aspect. In her two-component theory of aspect, view-point aspect – that is, the component of aspect that is provided by a tense-form, or by an aspectual morpheme, allows to *see* some parts of an eventuality, and *hides* away others. This can be illustrated for the main aspectual opposition Smith assumes, namely between perfective and imperfective aspect, as follows:

- (1) a. I F (imperfective aspect)
 ///
- b. I F (perfective aspect)
 ////////

I represents the initial point of the eventuality, *F* the final point; the medial dots represent inner stages of the eventuality. Therefore, the first line in either representation refer to the realm of *Aktionsart*. The slashes represent the stages of the eventuality that aspect renders “visible”: some inner stages in case of imperfective aspect, and the entire eventuality with perfective aspect. This is the second component, which is encoded in view-point (or grammatical) aspect.

This theory nicely explains oppositions such as the following examples of French:

- (2) a. Jean se noyait, mais heureusement, Pamela Anderson l'a tiré des flots.
 b. Jean s'est noyé, #mais heureusement, Pamela Anderson l'a tiré des flots.

First of all, the examples in (2) only differ with respect to the tense form applied to the predicate *drown*, namely the *Imparfait* in (2a) and the *Passé Composé* in (2b). The eventuality of *drowning* has certain intrinsic properties. Namely, it is telic, that is, it has a natural end-point, namely death. If this endpoint is attained, the eventuality cannot continue, and before that point has been attained, one cannot say that an event of *drowning* has occurred.

(2a), where *to drown* is marked by the *Imparfait*, is not contradictory, which – according to Smith – means that the French *Imparfait* does not allow to “see” the endpoint of the eventuality *to drown*. On the contrary, (2b) is contradictory, which can be explained if one assumes that the *Passé Composé* grants a complete vision onto the eventuality (and its bitter end for Jean).

Smith’s way of characterising the working of aspect consists of an optical metaphor. Of course, there is nothing intrinsically wrong with using metaphors; yet, one should be aware that her way of conceiving things is not innocent. Smith compares view-point aspect to the lense of a camera: without a lense, there is nothing to be seen. Therefore, coming back to aspect, without the lense that is aspect, the eventuality is invisible. The metaphor justifies thus the universal presence of aspect, since aspect alone is able to guarantee that some part of the eventuality is visible.

The idea of aspect-as-a-lense is certainly one possible way of conceiving of aspect. However, there is a closely analogous optical metaphor that Smith might have used, and which has diametrically opposed consequences with respect to one important question. The alternative view is the following: one could very well compare aspect to a frame or a camera shutter, that is, a device which does not warrant the access to selected parts of an eventuality, but one that impedes the access to selected parts of an eventuality. Such a position would completely reverse the perspective on what happens if there is no such thing like morphologically encoded aspect in a language or in a tense-aspect form. If there is nothing that covers parts of the eventuality, it should be globally accessible, which corresponds according to the schema in (1b) to perfective view-point aspect.

In Smith’s “lense-“version of the story, however, a special kind of view-point aspect is required in such circumstances (that she names “neuter” aspect), since the accessibility of some parts of an eventuality entails that there is some kind of view-point aspect involved.

So, summing up, it may be true that Smith’s optical metaphor helps us to understand what aspect is about. Yet, that metaphor is definitely not an innocent one.

2.3. Topic/Assertion Time According to Klein

Wolfgang Klein (1994, 1995) introduced a device quite similar to Smith's interval of visibility, which serves extremely similar aims. But instead of retaining a metaphorical approach to what does his "assertion" or "topic"-time (as he calls it), he applies a proper linguistic characterisation, which is in line with formal semantic approaches: the interval of assertion is the interval to which the speaker's commitment with respect to the running time of an eventuality is limited.

According to Klein, the introduction of an interval of assertion is justified by and needed for the analysis of examples like the following:

- (3) a. *Ivan rabotal_{imp} v Moskve.*
 I. worked in Moscow.
 b. *Ivan rabotal_{imp}, rabotaet_{imp} i budet rabatat'_{imp} v Moskve.*
 I. worked, works and will work in Moscow.

(3a) may be described as containing two meaning components: a *positive* one, according to which there is an eventuality of the type *Ivan work in Moscow* located in the past. Second, a *negative* one, according to which this state of affairs does not hold any longer at the moment of utterance. Klein (1995) notes that the negative component is not hardwired into the semantics of this sentence. One can show by (3b) that the negative component is only an implicature, which can be cancelled in appropriate circumstances. Therefore, only the positive component belongs to the asserted content.

Given the examples in (3), Klein (1995) argues as follows that an interval of assertion needs to be introduced for this case: if the meaning of a tense-form would be to directly locate in (3a) the eventuality with respect to the moment of assertion, one should obtain an assertion with respect to the end of the eventuality.¹ That is, the negative component should be part of the asserted content. Yet, such an assertion does not exist. Therefore, Klein argues that one cannot directly localise the eventuality with respect to the moment of utterance. So, the assertion of the existence of such an eventuality must be restricted to some interval in the past, and this interval that needs to be introduced is the above-mentioned Topic- or Assertion-Time.

Once again, the time of assertion is used as a way of opposing what is asserted of an eventuality (which falls into the interval of assertion) and that which is implicated of an eventuality (that which falls outside the interval of assertion). The focus on the difference between assertion and implicature

¹ Formulated differently: if the meaning of a past tense were something like "*the eventuality is located before the moment of utterance*", the eventuality could not continue to last up to the moment of utterance.

makes this move attractive for formal semanticists focussing on truth conditions.

Yet, Klein's conclusion of the necessity of an interval of assertion does crucially depend on an auxiliary hypothesis that is not explicitly formulated in his work, but which can be stated as follows:

- (4) The tense-aspect-system locates an eventuality globally, and not just partially.

If one does not assume hypothesis (4), the necessity of an interval of assertion does not follow any more, as I will demonstrate in the next session.

At this point, I would like to stress the fact that (4) is as such a perfectly legitimate hypothesis. Furthermore, in Klein's theory (which is not formalised in a model-theoretic framework), the interval of assertion has a theoretical status and grounding. So, my contention is not against Klein.

The problem I would like to point out is rather that one cannot just go and transpose in a literal way this idea into a model-theoretic semantic framework, as have done, among others, Pancheva (2003) and Schaden (2009). While importing ideas from other areas of study is often fruitful and inspiring, it leads in our case unwanted complications. This is what will be shown in the next section.

3. Implementing Assertion-Time in a Formal Model

Intervals representing an interval of assertion have been introduced into formal representations,² and this leads to formulæ like the following:

- (5) a. Il a plu. [It rained]
 b.

n, i, e
$i < n$ [past]
$\tau(e) \subseteq i$ [perfective]
$\text{rain}(e)$

In (5b), n represents the moment of utterance, and $\tau(e)$ the running time of the eventuality. PAST locates an interval i (the interval of assertion) in the past with respect to the moment of utterance n . PERFECTIVE aspect means that the temporal trace of the eventuality is included in the interval of assertion – which gives us a global vision of the eventuality. Finally, the last condition

² Already Smith (1991) presented an implementation of her idea in Discourse Representation Theory (DRT) – an implementation which does not always bear an obvious relationship to her intuitive idea of view-point aspect. I deliberately give (5b) in DRT notation, because it is easier to read than standard λ -calculus, which will be used below, when derivations are needed.

specifies that the event itself is of type *rain*.³

The important thing in (5) is not the mere fact that (5b) contains a reference to an interval *i* – which could be and has been motivated by other criteria⁴ – but rather that *i* is supposed to represent the interval of assertion.

In the next section I will show that one can easily dispense in formal semantics with an interval specifically dedicated to managing the assertion vs. implication dichotomy.

3.1. Reevaluating the Necessity of an Interval of Assertion

My demonstration will involve an analysis of sentence (3b) with the tools that according to Klein (1995) are insufficient, namely a direct localisation of the event with respect to the moment of utterance by TENSE. More formally, I will assume the representations in (6) for what follows.

- (6) a. $[[\text{PAST}]] = \lambda P \exists e [\tau(e) < n \ \& \ P(e)]$
b. $[[\text{PRESENT}]] = \lambda P \exists e [n \subseteq \tau(e) \ \& \ P(e)]$
c. $[[\text{FUTURE}]] = \lambda P \exists e [n < \tau(e) \ \& \ P(e)]$

The representations of the category of TENSE in (6) are designed to combine directly with an eventuality predicate. The first part in the formula between brackets temporally the temporal trace of the eventuality with respect to the moment of utterance. It is important to notice that TENSE localises directly the event, and that there is no intervening interval – of assertion or of another type.

The representation in (6) will lead to the following representation for sentence (3a):

- (7) $\exists e [\tau(e) < n \ \& \ \text{work}(e) \ \& \ \dots]$

Working in Moscow should be classified in (3a) as a generic state. This means that it is a perfectly homogeneous eventuality – which is all that we need in order to explain the acceptability of sentence (3b), even without assuming an interval of assertion.

3.1.2. Homogeneous Eventualities

³ I do not claim that (5b) is the only or a complete representation of sentence (5a), but only that this sentence has a perfective-past reading.

⁴ Early and “classical” DRT (cf., Partee 1984 or Kamp & Reyle 1993) features rather similar representations, with however quite different uses assigned to *i*. As is well known, temporal forms have properties that likens them to anaphoric expressions, and the introduction of additional intervals is useful in capturing these temporal anaphora, as noted already by Reichenbach (1947).

In order to be as precise as possible what I mean by being “homogeneous”, I will adopt the definition by Kiparsky (1998: 284),⁵ according to which being homogeneous amounts to being divisive and cumulative, while not being diverse, as defined below:

- (8) a. A predicate P is DIVISIVE iff
 $\forall x[P(x) \ \& \ \neg \text{atom}(x) \rightarrow \exists y[y \subset x \ \& \ P(y)]]$
P is divisive iff for any x such that x has the property P et x is not an atomic element of P, there exists at least one y such that y is a proper subpart of x and such that y has the property P.
- b. A predicate P is CUMULATIVE iff
 $\forall x[P(x) \ \& \ \neg \text{sup}(x) \rightarrow \exists y[x \subset y \ \& \ P(y)]]$
P is cumulative iff for any x such that x has the property P and x is not the maximal element of P, there exists at least one y such that x is a proper subpart of y and such that y has the property P.
- c. A predicate P is DIVERSE iff
 $\forall x \forall y[P(x) \ \& \ P(y) \ \& \ x \neq y \rightarrow \neg x \subset y \ \& \ \neg y \subset x]$
P is diverse iff for every x and for every y such that x and y have property P, and if x and y are not identical, then it is the case that neither x is a proper subpart of y nor y is a proper subpart of x.

Intuitively, divisivity says that if you have some event that is of some type P, and if you split that event into two parts, both subparts, if they are not minimal, will fall under type P. Cumulativity is the contrary: two events of type P will sum up and form together an event of type P. Both properties apply only with the restriction of minimal and maximal parts. Diversity is meant to exclude cases which are only cumulative or divisive because they lack non-minimal and non-maximal elements.

3.1.2. Directly Locating Eventualities – and Why it Doesn’t Matter

Let us come back to the analysis of examples (3ab). Assume that there is an eventuality of type *Ivan work in Moscow*, that lasts since 1980 and which will probably go on for some time in the future. This is a context in which a sentence with the truth-conditions as spelt out in (7) could be felicitously uttered.

Certainly, it may be that the content of (7) is not sufficiently informative in some context, given what a hearer may expect. But nevertheless, and crucially, this fact does not stop (7) from being true in that context. The reason is quite simple: the eventuality *Ivan work in Moscow* is divisive. Even

⁵ This definition is based on Krifka (1992, 1998).

if there is a much larger eventuality of the same type, it is still possible to refer to a subeventuality of that larger eventuality with the same predicate.

Now, the question is whether we can also derive the correct truth conditions for sentence (3b) – which is the sentence for which Klein claimed the interval of assertion to be necessary. And the answer to this is affirmative.

First an observation: the only way in which we could obtain a contradiction would be if a unique existential quantifier would bind three eventualities at the same time, as illustrated in (9):

$$(9) \quad \exists e [\tau(e) < n \ \& \ n \subseteq \tau(e) \ \& \ n < \tau(e) \ \& \ \text{work}(e) \ \& \ \text{Agent}(\text{Ivan}, e)]$$

Certainly, one and the same eventuality cannot strictly precede, strictly follow, and overlap the moment of utterance.

Good news is that (9) cannot be derived given reasonable assumptions. For the sake of the argument, I will assume that (3b) is to be analysed as a coordination of the tense-projections, without involving the coordination of different eventualities.⁶ I will assume a standard account of coordination, namely generalised conjunction as spelt out in Jacobson (1996: 93).

$$(10) \quad \begin{aligned} \text{a. } & \lambda P \exists e [\tau(e) < n \ \& \ P(e)] \cap \lambda P \exists e [n \subseteq \tau(e) \ \& \ P(e)] \cap \lambda P \exists e [n < \tau(e) \ \& \ P(e)] \\ \text{b. } & \lambda P [\exists e [\tau(e) < n \ \& \ P(e)] \ \& \ \exists e [n \subseteq \tau(e) \ \& \ P(e)] \ \& \ \exists e [n < \tau(e) \ \& \ P(e)]] \\ \text{c. } & \exists e [\tau(e) < n \ \& \ \text{work}(e)] \ \& \ \exists e [n \subseteq \tau(e) \ \& \ \text{work}(e)] \ \& \ \exists e [n < \tau(e) \ \& \ \text{work}(e)] \end{aligned}$$

The general conjunction in (10a) – which combines the three formulæ of (6) – resolves to (10b), which in turn will lead to (10c), once we have applied the eventuality predicate to (10b).⁷ As is easy to see, there are three independent existential quantifiers in (10c), and not a single one like in (9). To be sure, (10c) does not entail that there is one single eventuality of Ivan working in Moscow, and this is how it should be. However, since this eventuality is cumulative, and since the eventualities may therefore be summed under certain circumstances, (10c) is compatible with one single, uninterrupted eventuality existing, ranging from some time in the past into the future.

Therefore, if one assumes standard (neo-)Davidsonian event semantics, and standard λ -calculus, there is no need to introduce an interval whose only function would be to delimit the assertion of the speaker to some period. In model-theoretic semantics, assertion attends to itself.

⁶ I do not think that this is necessarily the correct way of analysing (3b), since there are three verbs, which encode three events. Yet, even with the much less favourable assumption of coordination at the level of tense only, we do not derive the contradictory (9), but the correct formula (10c).

⁷ The eventuality-predicate should be more complicated, but for the needs of the demonstration, the simplified version will suffice.

3.2. A Possible Counter-Argument: Localising Temporal Adverbials

Before going into what I consider to be a receivable counter-argument, let me explain once more the general line of the argument I have put forward. Proponents of the interval-of-assertion approach have claimed that a certain type of linguistic data requires the addition of an interval of assertion. I have shown that it is possible to account for the data in a system without an interval of assertion, and I conclude that – since one can do without such an interval – one should do without such an interval. The basic argument is thus one of simplicity: if a theory A can account for the same data with a subset of the theoretical apparatus of theory B, one should stick with theory A.

Now, if it could be shown that an apparent simplification of the theoretical apparatus would lead to an unnecessary complication elsewhere, the argument by simplicity would be undermined. Notably, in our case, an interval of assertion might be necessary in order to account for other linguistic expressions associated with the tense-aspect-system, and therefore, an interval of assertion would have to be introduced sooner or later anyway. It seems that the most promising area where such a situation might occur is the analysis of localising temporal adverbials.

Intuitively, the analysis of localising temporal adverbials seems more in line with an assertion-time stance than with the hypothesis that tense localises directly the eventuality. Indeed, one may say that such an adverbial simply specifies the interval of assertion. Let us consider a sentence like (11).

(11) John arrived last Sunday.

Last Sunday clearly should denote an interval. So, under the assertion-time analysis, the only operation one needs to go through is to match the interval denoted by *last Sunday* against the interval of assertion, i.e., identify the two. If things were really that easy, such a procedure would be much simpler than what would be required under the alternative, direct localisation approach: we need to transform the localising adverbial into an event-modifier, which involves some covert operation(s). The reason is the following: what the localising temporal expression would have to combine with is a property of eventualities, which of course cannot be directly applied to an interval, or a set of intervals: there would be a type-mismatch, which needs to be resolved. This could either be done by shifting or by a covert preposition: either is more costly than simple intersection on the interval-of-assertion stance.

This argument seems to put us into a situation like the one I have outlined above: being more economic for sentences like (11), the interval-of-assertion approach comes back into the race.

In the rest of this section however, I will investigate, and finally reject this claim that the interval-of-assertion approach provides us a simpler way

of dealing with sentences like (11). I will argue that the analysis of such sentences does indeed necessitate a covert operator, which has an observable impact on the temporal interpretation, and that any kind of analysis must assume its existence. So, an argument from simplicity against the direct-localisation approach will fail.

In order to make the argument, it is necessary to state my hypothesis about the denotation of a noun like *Sunday*. I assume that the basic semantics should be the one in (12):

$$(12) \llbracket \text{SUNDAY} \rrbracket = \lambda x. [\text{sunday}(x)]$$

(12) treats SUNDAY as a property of individuals, that is, as a set of entities that are Sundays. The advantage of a representation like (12) is that it treats interval-denoting nouns just like any other noun (for instance, the denotation of “car” is generally assumed to be a set of cars, or more formally, $\lambda x. [\text{car}(x)]$). Such a move is probably necessary anyway in order to account for uses of “Sunday” like in (13):

(13) Sunday is my favourite day.

It is important to notice that the denotation of *Sunday* is the set of intervals that are Sundays, which means that this intervals that cover the whole twenty-four hours of the day. Yet, one cannot simply let *Sunday* specify exhaustively this duration, when it is used as a localising temporal expression.

The basic observation was pointed out to me by Hamida Demirdache (p.c.), and illustrated in the examples below. None of the sentences in (14) entails that it rained throughout the whole day of Sunday.

- (14) a. Le dimanche, il pleuvait.
b. It was raining last Sunday.

The aspectual view-points involved in (14) are arguably imperfective,⁸ and should thus encode a relation of inclusion of the interval of assertion within the running time of the eventuality (i.e. $i \subseteq \tau(e)$). Assuming that this representation of imperfective aspect is accurate, it becomes clear that one cannot let *Sunday* specify the entire stretch of the interval of assertion, since in this case, the sentences in (14) should entail that it rained throughout the whole day of Sunday.

Assuming the semantics in (12), one has to introduce a condition that

⁸ Admittedly, things are not that clear for the French *Imparfait* (cf. e.g., Caudal, Roussarie & Vetter 2003), but the English progressive should arguably be modeled as an imperfective view-point in the sense of Smith (1991).

the interval of assertion does not equal Sunday, but is contained *within* Sunday. This condition has no overt morphological or syntactic reflex in the French sentence (14a), so a covert operator has to be introduced in any way, whichever approach one is willing to take with respect to the issue of introducing an interval of assertion or not.

A correct analysis of the sentences in (14) needs thus to look like (15b), and not like (15a),⁹ because (15a) carries the undesired implication that the raining-event lasted throughout the day of Sunday. The important part of (15b) – namely the part of truth conditions containing the morphologically invisible operator – is marked in boldface.

(15)	a.	n,i,e	b.	n,i,i',e
		i < n Sunday(i) i ⊆ τ(e) rain(e)		i < n Sunday(i') i ⊆ i' i ⊆ τ(e) rain(e)

(15a) says that there is an interval situated before the moment of assertion, that this interval is a Sunday, that the temporal trace of the eventuality includes the interval of Sunday. Finally, the eventuality is of type *raining*. (15b) is quite similar, however, Sunday does not localise directly the interval located before the moment of utterance, but localises this interval *within* its boundaries. This additional *within*-constraint is the semantic counterpart of the covert operator, analogous to a temporal preposition ON/AT. The presence or absence of a covert operator is thus independent of any particular theoretical framework, and the interval-of-assertion approach will have to integrate it as well. Once we have admitted a covert operator, it little matters if we integrate sortal conversion into it or not.

Therefore, I conclude that an analysis with some version of an interval of assertion does not fare better with respect to – or propose a simpler way of accounting for – the truth conditions of sentences with localising temporal expressions.

4. Concluding Remarks

I have shown in this paper that a neo-Davidsonian formal model of

⁹ The representations in (15) are once again extremely simplified, and a proper analysis should go along the Temporal Generalised Quantifier approach, as developed by Pratt & Francez (2001), and as adapted to event-semantics by von Stechow (2002).

temporality, and without the addition of an interval of assertion, can cope with cases that have been presented as illustrating the need of introducing such an interval of assertion.

I have also argued that the central intuition underlying the introduction of such an interval in both Smith (1991) and Klein (1995) – namely the separation of asserted vs. implicated content – can be maintained, without any formal element added. Therefore, in the interest of theoretical parsimony, no such interval should be assumed in a formal, model-theoretic theory of tense-aspect systems in natural languages.

This conclusion also eliminates the hypothesis that there is something like a universal (functional) category of aspect, which needs to be present in any natural language, independent of the question of the presence of morphological marking of such a category of aspect. The hypothesis of universal, “neuter” aspect needs therefore to be reconsidered.

Then, if there is no need for a category that guarantees the “visibility” of an eventuality (or its “assertability”), there is no reason to assume that natural languages might not use very different kinds of processes in order to express phenomena that pertain in the large sense to the realm of aspect and *Aktionsart*.

Finally, I wish to iterate the restrictions inherent to the claims put forward in this paper: in order to calculate the truth-conditions of sentences in discourse, we might very well end up being forced into assuming intervals very similar in a formal representation to an interval of assertion. I think that there are chances that phenomena of temporal anaphora and sequence of tense require an enrichment of the temporal ontology beyond the interval of assertion and events. However, the tasks such intervals are meant for would be very different to delimiting the speaker’s commitment with respect to some eventuality.

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