How (in-)sensitive is tense to aspectual information?

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1 Introduction

The purpose of this paper is to shed some light on two questions. They have in common that they concern matters of content and that they suffer from terminological confusion. The first question is how to deal with the opposition between grammatical aspect (Perfective vs. Imperfective) and lexical aspect (Aktionsart). Historically, the distinction between the two originated as a distinction between aspectual information at the sentential level and aspectual information assigned to a lexical class, in particular the verb. Nowadays one generally assumes that lexical aspect in the strict sense does not exist because the idea that the verb alone determines the "Aktionsart" can no longer be maintained. The aspectual information falling under that heading should be dealt with at a phrase structural level, in particular the level of the Verb Phrase or the Sentence, so it is no longer justified to speak of lexical (= verbal) aspect because information of the arguments of the verb turns out to be involved. If one calls the compositionally formed "Aktionsart" information *predicational aspect*, the first question amounts to: does it make sense to differentiate between predicational aspect and grammatical aspect?[1] As we shall see, the answer to that question may differ for Slavic, Germanic and Romance languages. After all now both notions apply to the phrasal level, so what is the difference if there is any?

The second question is whether or not aspectual information penetrates into the tense system and if so, how deeply? The zero option is that tense is indifferent to aspectual information which means that no tense form is dependent on the nature of the information on which it operates. Other options are available in the literature such as the position that the difference between the French Imparfait and the Passé Simple can only be explained if they are taken to be sensitive to the aspectual nature of the tenseless predication on which they operate. In the present paper, I will argue against such an option and in favour of the zero option. The leading idea behind a position in which tense is taken as insensitive to predicational aspect is that the primary function of tense is to contribute to the organization of discourse and not to account for aspectuality. The answer to the second question may also differ for Slavic, Germanic and Romance languages.

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[1] I owe the term 'predicational aspect' to Co Vet.

2 Lexical aspect and predicational aspect

In reviewing the literature discussing Slavic aspect at the beginning of the twentieth century, Verkuyl 1972 observed that (Western) grammarians transferred the test separating perfective and imperfective aspect in Slavic simply to German. In Leskien 1919:217 it was noted, for example, that the German sentences in (1) show the same sort of opposition as the Russian sentences in (1).

(1)   a.   Sie jagten den Hirsch den ganzen Tag.
             Oni gnali olenja vesj denj
             They chased the stag the whole day long
       b.   #Sie erjagten den Hirsch den ganzen Tag.
             #Oni zagnali olenja vesj denj
             #They caught the stag the whole day long

In general, German aspectologists at the time assumed quite generally that what now is generally called the *in/for*-test-test applies to the distinction between perfective and imperfective aspect rather than to lexical aspect. Following the observation made by Western scholars in the twenties and thirties of the twentieth century, Verkuyl 1972 noticed that the two tests apply to predicational aspect in Germanic languages as shown in (2) and (3).

(2)   a.   #Mary walked a mile for hours.
       b.   Mary walked for hours.

(3)   a.   Mary walked a mile in an hour.
       b.   ?Mary walked in an hour.

In (2-a), the only interpretation seems to be to assume that Mary repeatedly walked a mile in a period that lasted hours, whereas (2-b) expresses that Mary was involved in a continuous sort of walk activity.[2] Sentence (3-b) shows that the (tenseless) sentence *Mary walk* cannot take or cannot be taken by the adverbial *in an hour*, whereas *Mary walk a mile* in (3-a) is a natural partner.

The analytical problem that arises is that *Mary walked a mile* seems to pertain to something discernible as a discrete complete unit as opposed to *Mary walked* which can be said to pertain to something going on. If (2-b) expresses that the walk is terminated in the past, this is generally attributed to the English Simple Past tense, not to the aspectual information expressed by the tenseless *Mary walk* which presents Mary's walk without any clue about its possible end. The problem under discussion can now be formulated quite sharply: if one is allowed to describe the difference between the tenseless predications *Mary walk a mile* and *Mary walk* in terms of an opposition between something complete and something non-complete, how does this difference holding for Germanic languages relate to the opposition between perfective and imperfective aspect in Slavic languages for which the same sort of characterization is given?

This problem led Verkuyl 1972 to adopt a strategic null hypothesis saying that there is no need for a distinction between grammatical aspect and predicational aspect unless there is evidence to the contrary. Let us call this the T = Pfv Hypothesis, where T stands for Terminative or Telic and Pfv for Perfective.[3] This hypothesis turns out to

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[2]The symbol # indicates rather the blocking of the single event-reading than plurality, because in some cases there is a tendency to "stretch" the event, as in *Mary ate a sandwich for an hour* (cf. **?**).

[3]I am somewhat unhappy with the popularity of the term 'telic' because I put it aside to evade the notion of telos (= goal) as part of my conviction that for a proper understanding of aspectuality one should stay clear

require that one determine whether properties that in Slavic languages are assigned to grammatical aspect, are in fact T-properties rather than Pfv-properties. In particular, it could be the case that the *in/for*-test does not apply to the opposition Pfv vs. Ipfv but rather to the opposition [+T] vs. [−T] and that this is hardly visible because the presence of the Pfv-prefix and [+T] coincide in most cases. As we will see, there is sufficient evidence for the thesis that T ≠ Pfv. But this raises the question of which role grammatical aspect and which role predicational aspect have to play. Given the standard practice of compositionality, there are two options given T ≠ Pfv: (a) Pfv is dependent on the aspectual material provided by T; (b) Pfv is independent, or dictates conditions independently.

3   Is predicational aspect sufficient?

3.1   Germanic

In Germanic languages it is hard to see why [+T] = [+Pfv] would not hold. Consider the examples discussed in Verkuyl 1972; 1993.

| (4) | a. | Judith called the hospital for a consult | [+T] |
| | b. | Clients called the hospital for a consult | [−T] |

| (5) | a. | The robot walked from the spaceship to the rock | [+T] |
| | b. | The robot walked without any problem | [−T] |

| (6) | a. | Three litres of water escaped from the rock | [+T] |
| | b. | Water escaped from the rock | [−T] |

Sentences like (4-a), (5-a) and (6-a) are terminative (or telic). That is, they obey the restrictions of the *in/for*-tests and the conjunction-test as shown by the following sentences. As the *for*-test was discussed above, I will demonstrate the difference between [+T] and [-T] here only with the help of the conjunction-test:

| (7) | a. | On Monday and on Tuesday Judith called the hospital for a consult |
| | b. | On Monday and on Tuesday clients called the hospital for a consult |

| (8) | a. | On Monday and on Tuesday the robot walked from the spaceship to the rock |
| | b. | On Monday and on Tuesday the robot walked without any problem |

| (9) | a. | On Monday and on Tuesday three litres of water escaped from the rock |
| | b. | On Monday and on Tuesday water escaped from the rock |

Sentence (7-a) is about two consults, one on Monday and the other on Tuesday, (8-a) is about two walks and (9-a) is about six litres of water. So, for all the tree terminative sentences (4-a), (5-a) and (6-b) one can see that the addition of the time adverbial *on Monday and on Tuesday* enforces a multiplication rather than combining Monday and Tuesday into one domain, as is possible in the durative b-cases where the calls of the clients may cover a period of 48 hours, the robot may have walked continuously during that interval and the water have escaped from the rock continously.[4]

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from agentivity and intention in favour of essentially temporal notions. But I realize that I am fighting a lost battle. So, my compromise here is to use T most of the times.

[4]Note that the difference between (7-a) and (7-b) is even sharpened if the second *on* is dropped: *On Monday and Tuesday Judith called the hospital* is about at least two calls, one on Monday, the other on Tuesday, whereas *On Monday and Tuesday clients called the hospital* is about a 48-hour period. This effect

The compositional machinery obtaining the [+T]-value at the top of the tenseless sentence is quite simple: both the verb and its arguments contribute to the composition of aspectual information. In terms of (abbreviatory) features: the verb *escape from* in (9-a), for example, expresses nonstativity, which in my work is labeled [+ADDTO], and it is this feature that together with the specified quantity expressed by the NP *three litres of water* yields the complex terminative feature [+T]. So, in German languages, the verb cannot alone express its "Aktionsart"; it needs the help of its arguments in order to become aspectually visible. There are two ways to demonstrate the validity of this line of thought. Firstly, a sentence like *Three litres of water were stored in the rock* is [−T], because the verb *be stored* fails to have the required semantic content of expressing nonstativity.[5] Secondly, in (9-b) the argument NP is [−SQA] which makes (6-b) [−T] in spite of the nonstative dynamic nature of the verb.[6]

Against the background of the first main question of the paper 'Does it make sense to differentiate between grammatical and predicational aspect?' and given the fact that grammatical aspect is often taken, and certainly so in Slavic languages, as expressing a viewpoint, one should raise the question of whether the difference between say (4-a) and (4-b) may be explained in terms of the choice between two options made by a speaker. If (4-a) provides more specific information about a situation than (4-b), then the difference between [+T] and [−T] can be seen as a matter of viewpoint. Some strong support for this view is given in Galton 1984 but it should be noted that Comrie 1976 can be read as making this point. It amounts to giving ontology a secondary place: in the domain of interpretation some situation took place which the speaker wishes to describe as a countable unit, so that there are two of them in (7-a), one of them on Monday and the other on Tuesday, or as something that need not be discernible as a complete event. In this way [+T] can be taken as a filter on the reality (of the domain of discourse). This line of thought leads in a natural way to the conclusion that a separate level of viewpoint is not necessary and so the answer to the first question turns out to be negative, as far as Germanic languages like English and Dutch are concerned and so one could maintain that [+T] = Pfv.

However, a complication arises in English for the [+T] = Pfv Hypothesis. The Progressive Form, seems to correspond to what can be expressed by the Imperfective Aspect in Russian and not so much by predicational aspect: the sentences in (10) show that the Progressive Form takes both [+T]- and [−T]-predications.

(10) a. Judith was eating her two sandwiches.
   b. Judith was eating sandwiches.

This could lead to the conclusion that it is necessary after all to distinguish in Germanic languages between on the one hand the pair [+T]/[-T] and on the other hand the pair Pfv/Ipfv.[7] However, this conclusion should not be drawn too quickly. Slavic imperfec-

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is not present in the other cases, so the test works with two prepositions.

[5]Note that *Three litres of water were stored in the rock for months* is well-formed, whereas #*Three litres of water escaped from the rock for months* enforces a queer sort of repetition.

[6][±SQA] stands for specified or unspecified quantity of A where A is the noun denotation of the NP. Krifka opted for the terms quantized vs. non-quantized. In spite of the near-synonymy of the two pairs of terms, there are some differences which boil down to differences between a non-mereological approach (mine) and a mereological approach (Krifka's). Assuming some familiarity with the idea of aspectual composition, I restrict myself here to just these two arguments, referring to Verkuyl 1993 and Verkuyl 1999 for more precise information about the semantic machinery required for the process of amalgamating the information at the lexical level into phrasal information.

[7]Dutch has a Progressive Form which is comparable to the English one. The Dutch translation of (10-a), for example, is *Judith was haar twee sandwiches aan het eten*, where *to+be+at+V* would be the literal

tive aspect is not translationally equivalent to the English Progressive Form, one of the reasons being that Slavic imperfective aspect has more than one function: it expresses habituality and iterativity among other things that are different from what is expressed by the Progressive Form. Apart from that we hit upon an intriguing problem that should be taken into account first before deciding on this issue. Given the need to revise the insight on lexical aspect in favour of a compositional approach yielding predicational aspect, one should at least put some serious question marks with respect to the standard view on grammatical aspect by allowing the thought that the notion of viewpoint aspect in Slavic aspectology might be contaminated by the difficulty to distinguish properly between [+T] and Pfv in Slavic languages. After all, Slavic languages like Russian do not have articles, so one could argue that part of the information allocated to the determiners in Germanic languages is carried by the presence or absence of the perfective prefix in Slavic. And this might mean that the perfective prefix has a double duty to fulfill without having the certainty that these duties are of the same level.

3.2 Romance

For Romance languages it is harder to argue for [+T] = Pfv. The French Passé Simple and Imparfait, for example, are generally taken as similar in locating eventualities in the past, their difference being explained in terms of different points of view, as shown in (11) discussed in Molendijk 1990.

(11) a. Pierre rentra. Marie téléphonait   PS + Imp
      b. Pierre rentra. Marie téléphona   PS + PS

(12) a. Le général attaqua l'ennemi, qui se retirait   PS + Imp
      b. Le général attaqua l'ennemi, qui se retira   PS + PS

In (11-a) Pierre came home while Marie was on the phone, whereas (11-b) says that Pierre came home after which Marie made a call. In (12-a) the enemy was retiring when the general attacked, whereas in (12-b) the retirement followed the attack. Imp is often said to present the eventuality as going on, whereas the use of the Passé Simple presents the eventuality as a whole

The insight that the choice in favour of a certain tense is decisive for the organization of a discourse has been made concrete by Kamp and Rohrer 1983. In the tradition that they established and that got popular by Kamp and Reyle 1993, the idea has been prominent that the Imparfait and Passé Simple interact directly with predicational aspect. In other words, it has been assumed quite generally that for the two tenses to be able to apply it is necessary to operate directly on the information present at the level of [+T] or [–T]. This is visible, for example, in De Swart 1998, who analyzes the two tenses as containing an instruction to operate on the (tenseless) predicational aspect they are fed.

According to her, if the predicational aspect of the tenseless 'L'ennemi se retirer' is [+T], then, as shown in (13), the Imparfait invokes its aspectual operator C_{eh} which changes [+T] into [–T] on the ground that the Imparfait Past requires [–T]-predications. And, as illustrated in (14), if the tenseless predication 'Elle savoir la réponse' (She know the answer) is [–T], the C_{he}-operator of the Passé Simple changes [–T] into [+T] so as to obtain *Elle sut la réponse* (She knew (PS) the answer) because the PS Past

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translation of the Dutch equivalent of *to be-V-ing*.

requires events.[8]

(13) $[_{TP} \text{Past}_{\text{IMP}} [_{AP_{[-T]}} C_{eh} [_{S_{[+T]}} \text{L'ennemi se retirer}]]] \Rightarrow$ L'ennemi se retirait

(14) $[_{TP} \text{Past}_{\text{PS}} [_{AP_{[+T]}} C_{he} [_{S_{[-T]}} \text{Elle savoir la réponse}]]] \Rightarrow$ Elle sut la réponse

The idea is also that in the case of *Elle savait la réponse* (She knew-Imp) the answer), the Past of the Imparfait may take the [–T]-predication immediately without the interference of C_{eh} and that in the case of *L'ennemis se retira* the Past of the Passé Simple directly takes [+T]-predication. So, only in cases like (13) and (14) De Swart needs a coercion operator C in order to obtain the right sort of predicational aspect for the tense to operate on. In other words, PS and Imp must look into the tenseless S in order to see whether the T-information fits and, if not, they must invoke an appropriate operator.

There are two lines to attack this position. The first line is that it is hard to see why coercion is necessary in the case of (13). Why should tense be burdened by a restriction if it can do without it? The root of the problem seems to me that the tense part of the two tenses under analysis is kept too simple. Why would Past be the only (real) tense dimension involved? Isn't it possible to take the room now taken by C as differentiating between the two past tenses without being forced to look into the information provided by the tenseless predication? I will show in section 4.2 that this is possible, which implies that the coercion approach is an artefact of a certain organization of the tense system. The second line is that De Swart distinguishes between three sorts of situation: states, processes (grouped together under the label h) and events (e). Her claim is that aspectual operators associated with the two tenses at issue provide means to shift between these situations. She keeps realism away by adopting the general attitude within the DRT-tradition ever since Kamp 1981 of attributing to the boxes an intermediate status between language and the world. This is why she may think that the two operators in (14) and (13) are viewpoint-operators.

However, the normal procedure of model-theoretic interpretation that De Swart follows in specifying her semantics is based on the assumption that discourse referents are ontological entities of some sort. In her box-ontology, the aspectual classes are "out there": they are taken as values of an interpretation function I relating language to the model structure. But as many do in the Kampian tradition, she speaks about ontological classes and their properties apart from I and thereby ignoring it. It is therefore hard to evade the conclusion that the semantics of DRT is in fact founded on (a softened sort of) realism. De Swart assumes with many others that there **are** states, processes and events *sui generis* and that by using a sentence a choice has to be made between three ontologically relevant categories. This leads to a problem: if the interpretation function I indeed assigns to a tenseless predication α its value $I(\alpha)$, say a state situation like 'Elle savoir la réponse', and a C-operator coerces $I(\alpha)$ into another value, say the event situation $I(\alpha)'$ (as denoted by *Elle sut la réponse*), then these two values should be "out there" as referents simultaneously present in the domain of discourse. There should be both a state **and** an event, the former as referent of the (still) tenseless S and the latter as the referent of the still tenseless C(S), after which the tensed PS(C(S)) yields another referent. It becomes quite crowded. Note that the same would have to apply to $\neg$ in sentences like *Le chien ne sut pas tout de suite ce qu'il fallait faire mais* . . . (The dog didn't know immediately what to do, but . . . (internet). Here the negation sign would have to cancel the [+T]-value of the AP in (the analogue of **??**) in order to

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[8]C_{he} = change a state or a process into an event, C_{eh} = change an event into a state or a process, TP = Tense Phrase, AP = Aspect Phrase.

obtain (again) a state. So, the question arises: why make an "ontological connection" between language and model structure if time is not yet ripe, so to say.

What I am doing here is to underscore that the notion of an ontological class corresponds essentially to what linguists consider lexical categories and not to what they call phrases. Linguists are used to see phrases as structures in which lexical categories are combined into larger units of semantic information. The notion of an ontological class cannot be maintained as being the referent of phrases because there is no "lexicon of phrases". If phrases are seen as being generated by combining smaller (lexical) items into larger units and as being interpretable on the basis of a semantic procedure operating on combinations, then either one should have an ontological "grammar" in order to derive events, states and processes or one should stop thinking in ontological categories. In the absence of such a rule system it is advisable to evade any discussion about aspectual classes if they are connected with the idea that they exist "sui generis" apart from the language.

The above remarks are made because they make clear that one cannot simply assume that the Imparfait and Passé Simple express viewpoint aspect if one has not made a precise distinction between predicational aspect and viewpoint aspect. Coercion cannot be identified with viewpoint. In general, it will not do to simply say that viewpoint aspect is an operation on the tenseless predication (the eventuality description) because to say that a state has been changed into an event or reversely is too far away from what the notion of viewpoint should express. So we need to continue the main line of skeptical thought by first paying attention to Slavic languages.

3.3   Slavic

In Borik 2002 it is argued convincingly that for Slavic languages both [+T] $\nRightarrow$ Pfv and Pfv $\nRightarrow$ [+T] hold. That is, if predicational aspect is [+T], then Russian speakers are normally obliged to use the perfective verb form, but there are clear cases in which this is not the case, as shown by the sentence in (15).

(15)   Petja uže peresekal (ipfv) etot kanal v ponedel'nik i vo vtornik
        Peter already crossed this canal on Monday and on Tuesday

Borik notes that this sentence clearly expresses two separate events of crossing the channel, one on Monday and the other on Tuesday.

As to the other direction, not all perfective forms express [+T] as already demonstrated for Russian in Comrie 1976:19,

(16)   On dolgo ugovarival (ipfv) menja, no ne ugovoril (pfv)
        For a long time he persuaded me, but he didn't persuade me
        'He spent a long time trying to persuade me, but he didn't actually persuade
        me'

and for Polish in Młynarczyk 1998.

(17)   a.   Przez lata nie czytał zadnej ksiażek
             -long/for years neg Ipfv-read-3sg no book-Gen
             'For years he did not read books'
        b.   Przez lata nie przeczytał ani jednej ksiażki-Acc.
             -long/for years neg Pfv-read-3sg not even one books
             'For years he did not read a single book' (not even one book)

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In (16) it is clear that the perfective form *ugovoril* is used after negation. The predication in the Germanic gloss *He didn't persuade me* is durative due to the presence of the negation element. So, the argument should be that *ne ugovoril* is [–T] but Pfv. The Polish examples in (17) give the same picture: the presence of the perfective prefix should be interpreted as sharpening the tenseless predication 'He read a book' so as to make sure that the negation really denies a complete eventuality.

It is also important to see that the *in*-test yields the same picture: without the adverbial *w rok* the Polish negative sentences in (18) are durative, as predicted by the compositional machinery making up [–T] or [+T] but the two sentences are equally incompatible.

(18)   a.   ?W rok nie czytał zadnej ksiażek
                      lit: in hour neg he Ipfv-read-3sg no book-Gen
         b.   ?W rok nie przeczytał ani jednej ksiażki
                      in hour neg he Pfv-read-3sg not even one book-Gen

The examples in (16) - (18) show that one cannot simply equate [+T] and Pfv in Slavic, pace Kabakčiev 2000.

The fact that there are strong empirical arguments in favour of [+T] $\neq$ Pfv should not lead to ignore the fact that there is a considerable overlap between the information expressed by [+T] and the Pfv-information as long as one interprets Pfv as pertaining to properties of the semantic object denoted by the tenseless [+T]-predication. This point can be sharpened by considering the question of markedness. In Verkuyl 1993 it was shown that in Germanic languages [+T] is the marked value in the opposition between [+T] and [–T]. The latter feature captures "a garbage can": durativity in Germanic languages covers the expression of states, negation, habituality, categoriality, iterativity, bare plurals, empty categories and the like. In fact, [+T] is to be taken as a category on itself carving a unique, discernible unit that can be counted or measured. It requires set formation in the sense that the semantic object that is [+T] is an element of a set. This applies also to [+SQA]-Mass NPs like *A liter of whisky*, *that water*, *this piece of music*, etc. As soon a Mass NP is [+SQA] (or quantized, some would say) a category of similar semantic objects can be formed.

Given the nature of the opposition between [+T] and [–T] in Germanic languages and given T $\neq$ Pfv, the question arises for Slavic why the opposition between Pfv and Ipfv should be taken as being so closely related to the opposition between [+T] and [–T]? One of the things to be established is whether the *in/for*-test applies to [+T]/[–T] or to Pfv/Ipfv. Suppose it were true that for Slavic it could be maintained that predicational aspect is responsible for the behaviour of sentences with respect to this test, the way is free to assign a different duty to the opposition Pfv/Ipfv. This has not happened yet, although Borik 2002 can be seen as an interesting attempt. One way to go would be to show that the [+T]/[–T]-distinction in Slavic is essentially the same as in Germanic: not based on equipollence ([+T] = – [–T] and [–T] = –[+T]) but rather as a privative opposition ([+T] marked, [–T] a host of known alternatives of all sorts) or as a subordinate opposition along the lines of **?** ([+T] : marked, [–T] : no information given). It means that what has been ascribed to Pfv in the literature could be argued to belong to the realm of T, as is the case with the *in/for*-tests. Therefore, it could be the case that Jakobson's attractive position is after all due to attribution of the [+T]/[-T]-opposition to grammatical aspect. In other words, suppose that [+T]/[-T] is a subordinate or privative opposition and suppose that grammatical aspect is needed as a lubricant, then there may be some room to ground the distinction Pfv/Ipfv on an equipollent basis after all.

Such a position would only be possible after having separated the two oppositions in a clear way by disentangling them. The leading idea should then be to undo the Pfv/Ipfv opposition of any element belonging to predicational aspect, so as to prevent a sort of ill-motivated doubling in e.g. Smith 1991. This can be done easier for Germanic languages because there the machinery to distinguish [+T]/[-T] from Pfv/Ipfv is more transparent. The next step is to apply the insights thus obtained to Romance languages in order to show that the Pfv vs. Ipfv opposition can be established separately, after which the third step may be taken by turning to Slavic languages in order to see whether the division of labour operates or not.

4 How to make tense insensitive to predicational aspect

4.1 Introduction

The idea to make tense crucially indifferent for aspectual information was developed in looking carefully at the four Dutch sentences in Table 1 and in particular at the names used to describe their tenses.[9]

		Onvoltooid Verleden		Voltooid Tegenwoordig	
		Imperfect Past		Perfect Present	
[–T]	1a.	Ze at	1b	Ze heeft gegeten	
		lit: She ate		She has eaten	
[+T]	2a.	Ze at een boterham	2b	Ze heeft een boterham gegeten	
		She ate a sandwich		She has eaten a sandwich	

Table 1: Crossing tense and aspect oppositions

An elementary but yet intriguing question arises by applying Fregean compositional semantics to the composite phrases *Imperfect Past* and *Perfect Present*. If α is the value of the expression *Past* how can the value β of the expression *Imperfect* be applied to α? How can a past be incompleted or something in the past be incompleted? If some eventuality e is located in the past from now, it cannot be incompleted because the notion of past expresses that $e < n$ (n being the now of the point of speech). Likewise, how can the most essential property of an e occurring in the present, namely that it is going on, be matched with the notion of completedness? These are not innocent questions. Fregean semantics requires that there be some semantic value that is both incompleted and in the past and a value that is both completed and present.

The tradition which makes tense dependent on aspectual information can be understood as operating on the assumption that there be such a value. That is, for the Dutch sentence in cell 2a the idea is then that in some contexts the tensed proposition $\varphi'(= \text{PAST}(\varphi))$ may be interpreted as expressing that there is an event e in the past such that only a part of e was "visible", partial visibility resulting from an Imperfect operation on the denotation of the [+T]-φ. This is the Progressive Form interpretation of (19).

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[9]The scheme in Table 1 played a crucial role in a workgroup consisting of three PhDstudents Olga Borik, Anna Młynarczyk, Paz Gonzalez and myself. We published about it in a local institute paper and some of the results of the group discussion will be found in three dissertations that are about to appear and in the remainder of this paper.

(19)　　Judith at een boterham (, terwijl Ole de vaat deed)
　　　　Judith was eating a sandwich (, while Ole was doing the dishes).

Along the same line, the Dutch sentence in cell 2b would be taken as a case in which the tensed [+T]-predication $\varphi'(=$ PRES PERFECT$(\varphi))$ is to be interpreted as expressing that the e denoted by φ was completed in the past, whereas e is also to be taken as being in the present, in some sense. Some scholars have tried to resolve this tension under the label of current relevance. Under such an analysis, e is taken as the semantic object that ties together the two apparently contradictory terms making up the complex tense information.

To see what is wrong with this, it is necessary to have a closer look at the most intriguing cell of Table 1:1b. Assuming the basic scheme $\varphi'(=$ PRES PERFECT $(\varphi))$ too, φ is [–T] in this case, as the tenseless predication 'She eat' does not give any clue about termination. Yet, cell 1b expresses that the process e as a completed whole is located anterior to the moment of speech. This does not imply that the [–T]-process e is to be turned into a [+T]-event e'. The [–T]-nature of the tenseless predication φ is retained in the resulting tensed proposition φ', which means that the sense of completion of cell 1b should be provided at a different level of presenting information than at the predicational level φ itself. This can be seen by comparing 1b and 2b very carefully. The sort of completion in 1b just described is not of the same kind as the tenseless [+T]-information expressed in 2b by $\varphi =$ 'She eat a sandwich'. In 2b there are two distinct senses of completion expressed by it. The first one is due to the tenseless [+T]-completion expressed by 'She eat a sandwich' which is also present in 2a. It makes 2b differ from 1b. The second one is the sense of completion which is present in 1b and which makes 2b differ from 2a (as well as from 1a). It provides a bounded **domain** in which the semantic value of φ is hosted and it is due to the righthand bound of this domain that this second notion of completion is expressed rather than by predicational aspect at the level of φ itself.[10] It is this second sense of completion that makes tense independent of aspectual information. Summing up, we end up with two oppositions:

1. [+T] = terminative (telic) vs. [–T] durative (atelic) : 2a,b vs. 1a,b

2. Completed/Perfect vs. Incompleted/Imperfect : 1b, 2b vs. 1a, 2a

Figure 1 may illuminate the basic idea and the difference with coercion or transitional approaches. Its upper part represents the standard treatment found in the literature in which the effect of tense is taken as an direct operation on the tenseless predication φ. On this treatment, the open-ended process of eating in 1a of Table 1 informally represented as an open interval (to keep things simple) will not have to change by the Past tense, whereas the open-ended [–T]-process of her eating in 1b is to be coerced into a closed interval representing a [+T]-event, along the lines of De Swart. As already observed in discussing her proposal no coercion is necessary for 1a and 2b, whereas for 1b and 2a it is.

In the lower part of Figure 1 one can see that there is no need to coerce: in each of the four cases the predicational aspect is as it given by φ. Its denotation is harboured in a domain which itself is either open-ended as in 1a and 2a, or closed as in 1b and 2b. In the latter case, it follows in 1b from the right-hand bound of the domain that the process

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[10]The present approach subscribes to and is congenial to proposals in Depraetere 1995, Declerck 1979 and other publications of these authors, who have argued for the need to distinguish between two different senses of completion. As far as I can see the way in which the notion of bounded domain is shaped in the present paper leads to a somewhat different position.
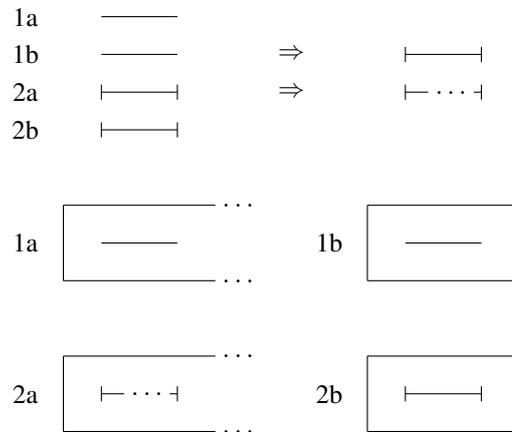
1a ────

1b ────   ⇒   ├──┤

2a ├──┤   ⇒   ├ ··· ┤

2b ├──┤

1a ┌──────── ···┐   1b ┌────────┐
   │ ──────   │   │ ────── │
   └──────── ···┘   └────────┘

2a ┌──────── ···┐   2b ┌────────┐
   │ ├ ··· ┤   │   │ ├────┤ │
   └──────── ···┘   └────────┘

Figure 1: Two approaches: same level or different levels

of eating came to an end and that in 2b there are two different senses of completion. What the boxes in Figure 1 express are domains of some sort. Given the fact that the main task of tense is to locate eventualities with respect to one another in a discourse, the appropriate metaphor for a box domain seems to be the movie shot. This brings back the notion of perspective: the open boxes are comparable describing eventualities in a domain with an open end as distinguished from presenting eventualities in a closed shot. The difference between 1a and 1b is that in 1a the eventuality itself may have continued because by the choice of tense the speaker has located the process in an open domain, whereas in 1b the idea of continuation is cut off because the choice of the tense requires that the domain be closed. It is the closure of the domain that indicates that the process in it must have come to a stop, either at the point at which the domain terminates or earlier for some reason not described by the sentence itself. There is no reason to call a process terminated in this way an event. It is even misleading to do so, because the quantificational information necessary to make up an event, provided by the predication itself is not involved here.

It is the second opposition—that between an open domain and a closed domain—that should be investigated as to the possibility of underlying the difference in Romance languages between the Imparfait and Passé Simple as well as the Slavic opposition between perfective and imperfective aspect. My thesis is that if there is a way to keep [+T] and Pfv apart in Romance and Slavic languages, then it should be along the lines just pegged out: [±T] should stay in the boxes of Figure 1, whereas Pfv as opposed to Ipfv should pertain to the nature of the boxes introduced by tense. In other words, the opposition Pfv vs. Ipfv should not say anything about the predication itself rather about the frame in which the eventuality in question is (to be) situated.

Summarizing one could say that three sorts of information should be accounted for in explaining the neutrality of tense with respect to predicational aspect. Firstly, a tense system should provide information about how an eventuality is ordered with respect to a harbouring domain that counts as its present ("the window through which one sees it"). Secondly, information should be given about the nature of the harbouring

domain itself with respect to some point of perspective to which the harbouring domain is related as a whole ("the right-hand side of the window"). Thirdly, information should be given as to whether this point of perspective is directly or indirectly related to the the now of the domain of discourse ("How far is the window from the point of speech?"). In the next section, I will discuss a tense system that satisfies the three requirements just formulated. It does that because it is set up as a system of three binary oppositions by which the three sorts of information can be accounted for systematically. It should be underscored that the tense system that will be discussed briefly is a Reichenbachian system, although it originated about hundred years earlier.[11]Its crucial advantage turns out to be that it provides more 'points' for the tense system to express the relevant relations and that it does so in a more natural way than customary in the two ternary divisions that characterize Reichenbach 1947.

4.2 A binary tense system and its dimensions

Table 1 is part of the Dutch tense system as developed by Te Winkel 1866.[12] By its $2 \times 2 \times 2$-set up it predicts the eight tense forms of Germanic languages like Dutch and English in a very precise way. It turns out to be applicable to both languages having a richer tense system (Romance languages) and languages having a poorer tense system (most Slavic languages). I shall briefly explain the main ideas of the binary setup of his tense system and I will show that a binary system can be interpreted as providing the means to warrant independency of tense from aspectual information.

Te Winkel's own ideas are sufficiently captured by the following quotations:

1. Present vs. Past

   > In thinking one starts from one of two points in time: either from the present or from the past. In the former case everything is seen as it appears at the moment at which one is thinking; in the latter case as it appeared at the moment at which one is thinking (in the past). (1866:68)

2. Synchronous vs. Posterior

   > An action is either synchronous or posterior with respect to each of the two points in time mentioned. (1866:68-9)

3. Action in Progress vs. Completed Action

   > An action expressed by a verb is thought of as going on as an *action in progress*, or as having been done, as a *completed action*. An action is really the ever-continuing transition from an *action in progress* to a *completed action*. A verb captures an action either in the middle of this transition or at the other end, where it has become a *totally completed action*. (1866: 69)

The first opposition is visible only by an opposition between tense morphemes, the second and third dimension are characterized by the presence or absence of auxiliaries: *zullen* (shall, will) expresses posteriority and *hebben* (have) what Te Winkel calls Completed Action. In what follows I will give a modernized version of Te Winkel's system

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[11]I refer to Te Winkel 1866 but Te Winkel wrote already about his binary system at the end of the forties in the 19th century.

[12]In Verkuyl and Le Loux-Schuringa 1985 in which it was made clear that the tense system as proposed in is superior to the tense system in Reichenbach 1947, Verkuyl 2001 argued that a binary system along Te Winkel's line makes it possible to provide for a compositional tense system.

as developed in Verkuyl 2001, adopting the idea of a three-step construction of tense and developing the three requirements at the end of the preceding section.

Let me first discuss some properties of the system in more detail. The basic idea is that Past and Present are the fundamental tense forms as suggested by Figure 2 together with Table 2, where the eight forms are spelled out: the operators PRES and PAST carry the tenseless S into a tensed sentence S′. The left-hand side of the Table provides the
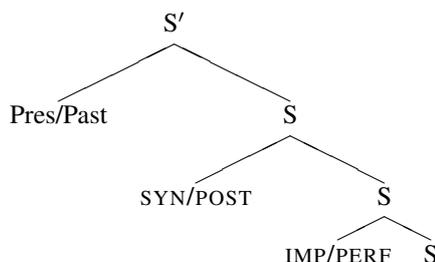

Figure 2: Tense structure

four present forms, its right-hand side the four past forms. There is a strict parallelism between the two columns as will be visible shortly in presenting the corresponding configurations in Figure 3 below. PRES and PAST operate on a tenseless S and yield a

Zij schrijf	Zij schreef
She write	She wrote
PRES(SYN)(IMP)(S)	PAST(SYN)(IMP)(S)
Zij zal schrijven	Zij zou schrijven
She will write	She would write
PRES(POST)(IMP)(S)	PAST(POST)(IMP)(S)
Zij heb geschreven	Zij had geschreven
She have written	She had written
PRES(SYN)(PERF)(S)	PAST(SYN)(PERF)(S)
Zij zal hebben geschreven	Zij zou hebben geschreven
She will have written	She would have written
PRES(POST)(PERF)(S)	PAST(POST)(PERF)(S)

Table 2: The eight Dutch tense forms

tensed S′, whereas the operators of the second and third dimension take a tenseless S yielding a tenseless S. The lowest line of each of the four rows in Table 2 provides the complex tense information in terms of the operators.

The bottom-top procedure of interpreting the tense structure starts with translating a tenseless predication, say 'Mary write the letter', into a type-logical formula.

(20)   Mary write the letter $\rightsquigarrow \lambda i'.\mathrm{Write}(i')(b)(m)$

This is reminiscent of a standard event-semantic analysis, but apart from the fact that (20) has been simplified, it should be underlined that the index i' is not an event argument but an index representing a (natural) number associated with the Path-information exprressed by the predication, along the lines of Verkuyl 1993.[13]

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[13]The formula in (20) is simplified because the formalism in Verkuyl 1993 is not first-order. But the simplication does not bear on the problem at issue. For a way to relate indices to [+T]/[-T] cf. Borik 2002:119ff.

There are several reasons for having natural numbers as the semantic objects representing temporal units. One is that an e-argument has too many ontological implications, whereas an abstract natural number has the clear advantage of staying away from ontological considerations, including the aspectual nature of the eventuality: both [+T]- and [–T]-predications have index-information. A second reason is that we use numbers in the heart of our experience with time: we number the minutes, hours, days, weeks, months, years and so on, thus making it possible to evade the burden of operating directly in the real number system. That is, knowing that a day is an interval with internal structure, we also treat it as a discrete number by calling it, say June 22. And although we know that there is no hole between June 22 and June 23 because the two intervals are contiguous, there is a hole between the discrete numbers 22 and 23. We manage the interaction between two number systems quite competently. We can easily "break up" 22 into its morning, afternoon and evening, as easily as we can go from compressing an interval into a point. The index i associated with the tenseless predication should be seen as a number representing the interval during which the eventuality takes place. It relates to similar indices associated with intervals introduced by overt adverbials or covert ones (contextually given). As easily as we can say that 3 is included in 12 ($\{3\} \subset \{12\}$), we can say that an index representing an interval is contained in another index. So, to be more specific, the (cumulating) index connected with the information provided by mentioning January, February and March is included in the index associated with the series of months of which they are members. In the same way, the index associated with an eventuality is included in the index associated with a larger domain in which it is located. It is along this line that the following formal representations should be understood.

The semantics of the operators is given in (21).

(21)   a.   PRES $:= \lambda\varphi\exists i[\varphi[i] \wedge i = n]$ PAST $:= \lambda\varphi\exists i[\varphi[i] \wedge i < n]$
       b.   POST $:= \lambda\varphi\lambda i'\exists j[\varphi[j] \wedge i' < j]$ SYN $:= \lambda\varphi\lambda i'\exists j[\varphi[j] \wedge j \circ i']$
       c.   PERF $:= \lambda\varphi\lambda j\exists k[\varphi[k] \wedge k \subset j]$ IMP $:= \lambda\varphi\lambda j\exists k[\varphi[k] \wedge j \subseteq k]$

The definitions in (21)a introduce an index i that serves as the real speech time or as some virtual speech time in the past, as indicated by Te Winkel.[14] The idea is clear: it is a point of departure for the construction of temporal structure actualizing the tenseless S-information in real time (that is, the real time of the domain of discourse). The definition of POST in (21)b introduces a non-deictic future: it is not made dependent on n, but rather on an index i' with respect to which the index j is located in the future. The operator SYN is defined so as to make i a part of j, where j is to be taken as the present of i. A natural place for i would be at the end of j but I will discuss that point below in more detail. As to the definitions in (21)c, j can be taken as providing the domain with respect to the eventuality index k is defined. The operator PERF takes the index associated with the eventuality as being a proper subset of j and IMP as j being a subset of k or equal to it. Note that $\not\subset$ is an option to consider on the privative or even the Jakobson line: it would allow for overlap between j and k, which raises the problem that k may be located outside j. I will not pursue this option embarking on $j \subseteq k$.

An example should be sufficient to make clear how the system operates formally on the basis of the definitions. The meaning of sentence (22) is derived as follows:

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[14]His use of the notion of point may be interpreted as allowing n to be an interval, as many take it nowadays, or rather as I would like it, as an index associated with an interval, so that n counts as a natural number, just like the other indices in the system.

(22)   Maria had de brief geschreven
         Mary had written the letter

PERF(Mary write the letter) $\rightsquigarrow$
$\lambda\varphi\lambda j\exists k[\varphi[k] \wedge k \subset j](\lambda i'.\text{Write}(i')(b)(m))$
$= \lambda j\exists k[\lambda i'.\text{Write}(i')(b)(m)[k] \wedge k \subset j]$
$= \lambda j\exists k[\text{Write}(k)(b)(m) \wedge k \subset j]$
SYN(PERF)(Mary write the letter) $\rightsquigarrow$
$\lambda\varphi\lambda i'\exists j[\varphi[j] \wedge j \circ i'](\lambda j\exists k[\text{Write}(k)(b)(m) \wedge k \subset j])$
$= \lambda i'\exists j[\lambda j'\exists k[\text{Write}(k)(b)(m) \wedge k \subset j'][j] \wedge j \circ i']$
$= \lambda i'\exists j\exists k[\text{Write}(k)(b)(m) \wedge k \subset j \wedge j \circ i']$
PAST(SYN)(PERF)(Mary write the letter) $\rightsquigarrow$
$\lambda\varphi\exists i[\varphi[i] \wedge i < n](\lambda i'\exists j\exists k[\text{Write}(k)(b)(m) \wedge k \subset j \wedge j \circ i'])$
$= \exists i[\lambda i'\exists j\exists k[\text{Write}(k)(b)(m) \wedge k \subset j \wedge j \circ i'][i] \wedge i < n]$
$= \exists i\exists j\exists k[\text{Write}(k)(b)(m) \wedge k \subset j \wedge j \circ i \wedge i < n]$

The last line of the derivation gives the information that there is an index *i*, contextually determined and identified in discourse, in the past such that *i* overlaps with the index *j*, which is the present of i and the domain in which the index *k* associated with the eventuality is harboured, *k* being a proper subset of *j*. If *k* happens to be associated with a process as in *Mary had written letters* the meaning of PERF accounts for the fact that Mary's writing had been finished before *i*. The same applies to the [+T]-predication which is made part of the information expressed by *Mary had written the letter*: k is simply a subpart of j. There are strong arguments for the position that the i is "at the end" of j, in which case the fact that $k \subset j$ can be taken as implying that k precedes i (in a partial ordering, that is) .

This is by no means far-fetched. If we say *Mary heeft vandaag een brief geschreven* (lit: Mary has written a letter today), Dutch speakers know that the event must have taken place in the interval between the beginning of today and now: $k \subset [0, n]$. There is no objection to see the now n as being part of the present as expressed by *today* covering the interval [0,24]: n is the temporary final point of the present-so-far. We all know that the index k of the event is part of the today-index and that it precedes n without loosing the sense that k and n are located in the same present, namely today-up-to n, which is j, where $j = [0, n]$, in this case due to the presence of the adverbial *today*. Taken in this sense, i (which is identical to n under PRES) is synchronous to j in the sense that may be ascribed to Te Winkel: in relating to j , i provides itself a present to which k is going to be related . It is important to see that under the present analysis the nature of the event associated with k is totally indifferent as to its present. A sentence like *Mary heeft vandaag brieven geschreven* (lit: Mary has written letters today) also locates k as a subset of j (as in cell 1a of Table 1) and in this sense we interpret this sentence as pertaining to an eventuality that precedes the moment of speech. The same holds for *Mary had die dag brieven geschreven* (lit: Mary had written letters that day). In this sentence, i takes the place that n has in its present counterpart. The writing eventuality is located before i where i is at the end of j which is the present of i at that moment in the past and where k is located as a subset of j before i.

Let me take (Dutch) stock by giving the eight configurations that are generated on the basis of applying the three oppositions. The configurations are ordered in the same way as the examples given in Table 2. The main dividing line is the one between a-configurations and b-configurations: the difference is that in the latter cases i is located anterior to n. As discussed above, i is the virtual n located in the past. This accounts

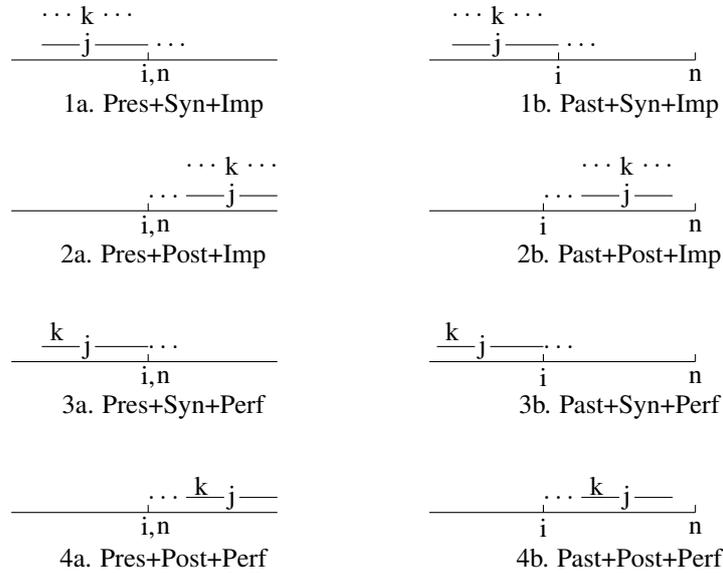| $\cdots$ k $\cdots$		$\cdots$ k $\cdots$
1a. Pres+Syn+Imp		1b. Past+Syn+Imp
2a. Pres+Post+Imp		2b. Past+Post+Imp
3a. Pres+Syn+Perf		3b. Past+Syn+Perf
4a. Pres+Post+Perf		4b. Past+Post+Perf

Figure 3: The Dutch tense configurations

for the identity of the i, j, k-configurations at the left-hand side and at the right-hand side. The second dividing line is the one between 1+3 and 2+4. In the last four cases j is positioned to the right of i without being connected directly to i (it is posterior). It is connected to it indirectly because j is part of the present of i. In the four cases of 1+3 j is directly connected to i (it is synchronous). This makes the crucial difference with 2+4 as to the third dividing line, namely between 1+2 and 3+4. In the four Perf-cases k is included in j, which means in the case of 4a and 4b that k is positioned later than i and in the case of 3a and 3b before i. Note that here the notion of completedness is made visible. For example, in case 3a the domain j is a proper subset of the present of i, as can be demonstrated with the help of sentences like *Marie heeft vandaag een brief geschreven* (lit: Mary has written a letter today) where $j \subset [0, i/n] \subset [0, 24]$ and where k is properly included in j independent of its predicational aspect.[15] The four Imp-cases illustrate that the relation between j and k is left unspecified. This means that j may be included in k (or: precede k).

5 Comparing tenses from different systems

After having discussed a German tense system I will consider the relevant tenses in French and Russian from the point of view of defending the position that predicational aspect is to be seen as neutral with respect to tense. The room for taking this position is enlarged by the fact that in German languages the first binary opposition of (21), the

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[15]The present analysis is quite compatible with the recent extensions of the so-called Extended Now theory a proposed in Von Stechow 1999 and related papers accessible on Von Stechow's internet site. It seems to me that a binary approach as advocated here would strengthen the EN-thesis considerably because it detaches the idea from the Perfect. It is a property of the presence of Syn in interaction with i.

one between Pres and Past, is in fact the only genuine tense opposition: i is located in the real time of the domain with respect to the deictic centre of the system, the index n. This is the information that comes with tense, whereas the other information is provided by essentially tenseless information that is mapped into real time by the Present form or the Past form.

5.1 The French Imparfait, Passé Simple and Passé Composé

If the same picture can be maintained for Romance languages, this would mean that the information about j should be expressed either together with the tense information or one should assume a three-step layered organization in which the Future tense will be treated as detached from the point of speech n as defined by (21)b. I will pursue the latter line of thought not excluding the possibility that for French the first dimension is organized as a tripartite opposition. In that case, a sentence like *Mary va écrire une lettre* (lit: Mary goes to write a letter) could be analyzed analogous to *Mary zal een brief schrijven* and *Mary will write a letter*.

However, I will focus here on the difference betweenthe Passé Simple and the Imparfait on the one hand and between these two Past tense forms and the Present tense form of the Passé Composé on the other. The latter is relatively easy to describe, given Figure 3: it can be understood in terms of the configuration 3a. Below I will return to the question of how the Dutch and French perfect forms differ from the English Present Perfect. There is sufficient similarity between the coverage of the Dutch Present Perfect and the French Passé Composé to assign them the same basic structure.

As to the Passé Simple, it is a Past tense form but it behaves as a PERF-form in the sense that there is a strong requirement on the relation between j and k: at least one should have $k \subset j$. But this would yield configuration 3b of Figure 3, which is the Past Perfect form. Now, it has been observed that there is a close relation between the Passé Simple and what is expressed by the Past Perfect: pastness and completedness. If the Passé Simple can taken as essentially an Aorist form, the closeness of the relation is that the Aorist expresses both Pastness in the sense of 1a of Table 1and Completedness in the sense of 1b. Yet, one may not identify the Passé Simple and the Past Perfect completely although the Aorist has a considerable overlap with the PP. This is obtained by requiring $k \subseteq j$, which should provide the closeness of k to i but also provides a sort of Past Perfect sense.[16]

The difference between the Passé Simple and the Passé Compose is also well-defined now: there are two differences. Firstly, the i of the PC is located in n and the i of the PS in the past. Secondly, the requirements on the relation between j and k are different: for the PC $k \subset j$ and for the PS $k \subseteq j$. The relative simplicity of the two transitions may account for the current development in which the PC takes over the duties of the PS in spoken French. This might have been obtained by softening the PC-requirement into $k \subseteq j$. It seems to me that a binary approach makes it possible to describe the differences and correspondences between the three tenses under analysis properly while maintaining the position that predicational aspect can be made invisible for the tense forms.[17]

The Imparfait also fits into the configuration 1b of Figure 3, but to identify the use of the Dutch Imperfect with the use of the French Imparfait would ignore the obvious

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[16]Since $k \subset j$ does not say anything about the position of k with respect to its last part i, $k \subset j$ could do the job alone or one could invoke $k = j$ for the PS, but I leave this matter open for a more detailed investigation including the use of the Greek Aorist in comparison with the Present and Past Perfect.

[17]For a more extensive survey of the French tense system, see PICS.

differences between the contexts of use of these two forms. However, these differences are due to the presence of the Passé Simple in French which claims its own role in the tense system and covers part of what can be expressed by the Dutch Simple Past in some contexts of use. The obvious place to look for is (21)c. As observed, we have embarked on the option $j \subseteq k$ for the definition of IMP. The $j \subseteq k$-specification for the Imparfait leaves open the possibility for $j = k$ as in the case in which *Mary traversait la Manche* (Mary crossed the Channel) is used to report about a complete crossing. For French the =-part of the $j \subseteq k$-information should be less likely in view of the fact that $k \subset j$ is available in another past tense. But it is available. In Dutch one has to switch to a present tense in order to have $k \subset j$, so in order to obtain a sense of completion one may appeal to the =-part of the $j \subseteq k$-information as a default (dependent on the context of use). For [+T]-predications this default is a natural strategic option: without the evidence to the contrary as expressed by the subordinate clause of (19), the *Judith at een boterham* (Judith ate a sandwich)-part expresses a completed event.

5.2 Among Germanic tenses

The difference between the French Imparfait and the Dutch Imperfectum may be ascribed to the presence of an extra tense form in French, but in order to account for the difference between the English Imperfect and its Dutch counterpart one cannot appeal to such an extra form. As discussed in Verkuyl 2001, the difference may be explained in terms of adverbial modification. The reason why Dutch can have both *Judith at gisteren drie boterhammen* (Yesterday Judith ate three sandwiches) and *Judith heeft gisteren drie boterhammen gegeten* (lit: Yesterday Judith has eaten three sandwiches), whereas English does not allow the last gloss as a sentence, is that in Dutch *gisteren* (yesterday) is associated with j: $j \subset [\![\text{Yesterday}]\!]$, whereas for English an extra requirement holds: $j \subset [\![\text{Yesterday}]\!]$ & $i = n$. Given the fact that the Progressive Form has taken such a prominent place in the English tense system covering $j \subset k$, it follows that the default value for the Simple Past has focussed on the remaining part of $j \subseteq k$, namely $j = k$. Which would account for the fact that the simple Past in English tends to express completion ("of the higher window level", so to say, not at the predicational aspect level.)

5.3 Slavic tense

For the discussion of our thesis as applied to the Russian tense system I will make use of Borik 2002, which discusses the question of how the difference between perfective and imperfective aspect in Russian can be detached from the [+T]/[-T]-opposition. The Russian tense system can be argued to have a main division between Past and Non-Past. In spite of the apparent lack of forms, it is clear that Russian covers roughly the same ground as the Germanic tense system. Roughly, because *Ona napisala* should be taken as expressing something wavering between the Passé Simple and the Past Perfect dependent on the context of use. Roughly also, because the Future Perfective form *Ona napiset* comprises situations in which English speakers could have used *She will have written* but it can be used more generally.

Borik defends the view that in terms of an extension of the well-know Reichenbachian system, perfective aspect should be defined as in (23)a and imperfective as in (23)b.

(23)   a. $S \cap R = \emptyset$ and $E \subseteq R$.

Non-PAST	PAST
Ona piset	Ona pisala
She writes	She Imp-wrote
i,n & i ∘ j & j ⊆ k	i < n & i ∘ j & j ⊆ k
Ona bud-et pisát	—
She will write	She would write
i,n & i < j & j ⊆ k & i < n	
—	Ona napisala
	She Pfv-wrote
She has written	She had written
	& i ∘ j & k ⊂ j
Ona napiset	—
She Fut/Pfv-writes	
She will have written	She would have written
i,n & i < j & k ⊂ j	

Table 3: The Russian tense forms

b.   not perfective: $S \cap R \neq \emptyset$ or $E \not\subseteq R$

Translated into the binary system that has been described in the present paper this boils down to the requirement that Pfv be given the requirement $k \subseteq j$. Here we differ because the proper subset relation covers different contexts of use than the subset relation. I will not start a debate here, but leave open the possibility that in order to account for the correspondences between the Slavic tense system and the Germanic and Romance systems, either of the options may have to be chosen. I will also not discuss the question of how the perfective prefix should be given a place in the tense system itself. For the moment, the semantic correspondences should be given an more prominent place than the syntactic underpinning. If the present thesis can be maintained, it should be easy to provide a syntax allowing the relevant information to take part in a larger whole.

6   Conclusion

The thesis of the present paper was that it should be possible to distinguish between predicational aspect and grammatical aspect and that by doing that it becomes possible to detach aspectual information from information that is typical of tense. As a consequence it follows that one should not use type-logical instruments in order to adapt the type of the predication expressing predicational aspect. By taking Pfv and Ipfv as "windows" on what happens and by doing something similar for tense systems that distinguish between perfect forms and imperfect forms, it is possible to sort out two notions of completion at a different level. It has been shown that the two levels of completion can be made visible in the interpretation of sentences.

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