On Aspectuality[*]

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Abstract

The topic of this paper is aspect or in Verkuyl [18]'s terms, aspectuality. Smith [15] distinguishes two types of aspect: *situation type aspect*, the classification of verbs according to their lexical meaning, and *viewpoint aspect*. The two main constructions exhibiting viewpoint aspect are the present perfect and the progressive. The paper consists of three parts. In the first part I discuss the Vendler classification in light of a model theory of eventualities. In the second part I discuss the meaning of the Dutch aspectual adverbials 'al' and 'nog' (English 'already' and 'still'). Aspectual adverbials are typically process-creating words and have interesting meanings closely resembling the meaning of the progressive. The third part discusses the present perfect.

Contents

1 Events, specific and generic

Reichenbach [12] discussed the different perspectives of thing splitting and event splitting. Adopting the event splitting perspective resulted in adorning logical formulae with event-arguments. Compare *a.o.* Davidson [3], Parsons [11]. However, writing things like "Play-the-piano (e, John)" does not make good sense unless we also develop a model theory to interpret such formulae. Kamp & Reyle [7] (hence KR) provide such a model theory. Let us rehearse the main features.

Time

What does time consist of? There are two natural answers: (a) time consists of temporal entities such as moments or periods, or (b) time consists of eventualities, that is, events and states. The latter concept is the one closest to our intuitions. Time is the past, the present and the future. The past is that which has occurred, the present is that which is presently occurring, and the future is that which will occur.

The interesting idea behind a KR-type model theory is that we know that there is time because there is change. Change is modelled here by events. An event is conceived of as a transition between the two polarities of a state. An eventuality structure models what has been the case—*i.e.* which events occurred and which states obtained, and the order in which in which all this happened. This eliminates the future. We will discuss the future in due course. Hence, it models the world as we know it under the event-splitting perspective. Change can be measured and the time structure—*i.e.* moments, periods and intervals—is used to measure change. Hence, the eventuality structure and the time structure model two different aspects of our intuitive notion of time.

KR-type models

Here are the precise definitions of a KR-type model cited after Kamp & Reyle [7, p. 664ff].

$$M = < \mathcal{EV}, \mathcal{T}, \mathcal{LOC}, \equiv, \mathrm{Name}_m, \mathrm{Pred}_m, \mathrm{Fun}_m >$$

$\mathcal{EV}$ is an eventuality structure

$$\mathrm{EV} = < EV, <, \circ , E >$$

$<$ is the precede relation over EV, whereas $\circ$ is the overlap relation. E is to be the set of events of the model, whereas $EV - E = S$ is the set of states.

Instants are defined over EV as maximal sets of pairwise overlapping events. The resulting instant structure is referred to as $I(EV)$. Instants are also ordered by a precede relation.

The time structure $\mathcal{T}$ is a linear ordering $< T, <>$. T is the set of moments. In fact, T is just the set of reals. Intervals are defined over a set A. Each convex subset of A is an interval, a member of the interval structure $Int(A)$ defined

over A. So, an interval is an ordered set without gaps. KR define interval structures both on the set of instants $I(EV)$ and on the set of moments T. The resulting structures are referred to as $Int(EV)$ and $Int(T)$, respectively. LOC maps EV to $Int(T)$.

Reality and the logic of discourse

NL-models are not meant to be models of reality. Otherwise we would be forced to analyze language use differently according as it is used to talk about reality or not. What we model in our models is the structure of discourse, of the way we talk. Fictional and non-fictional texts share the same concept of the past. Assertion is the default speech act by which we claim our text to be a faithful picture of the actual world or reality. We restrict attention here to temporal and aspectual expressions, and leave the analysis of speech acts out of consideration.

The moment of speech

The past precedes the moment of speech, and, of course, the speech act itself is an eventuality the speaker can deictically refer to. We propose to model the moment of speech as the latest instant[1], if there is such an instant. Consequently, the past is an linearly ordered set of instants.

The dynamic perspective

We adopt the dynamic perspective. Compare Muskens, Van Benthem & Visser [10]. In each model, the past consists of all those eventualities which both speaker and hearer have agreed upon to consider as having occurred. It contains, among others, all those eventualities which the speaker has asserted to have occurred or obtained and have remained uncontended by the hearer. Hence, the set of eventualities EV is updated as the discourse proceeds.

Temporal structure

Eventualities have internal temporal structure. In order to find out what this internal structure looks like we first discuss Vendler [17], and then turn to Kamp & Reyle[7].

Specific and generic

In Vendler's classification walking is an activity but walking to the post office is an accomplishment. Accomplishments have a *telos*, a natural ending, which activities lack. However, this is pure generic thinking. In any model with an eventuality structure the eventualities are all specific. If a walking event occurred, then there is somebody who walked at some place at some time

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[1]Or, rather, the value of this instant under LOC. What is said here relates to assertions. The situation is different for narration, where the narration point is the latest instant.

into some direction guided by some intention. That is, there is full thematic information present in the eventuality.[2]

Alongside information about the specific eventuality, there must also be generic information about the *type* of eventualities that the specific eventuality belongs to. Walking is lifting your feet and put them back on the ground again. Moreover, there is generic information of a different type as well, *e.g.* about taking a walk. Human activities are tied to certain purposes or intentions, and these are part of the generic information. We will call this generic information the generic design of the eventuality. The *internal* temporal structure of the eventuality is part of the generic design. There are, obviously, also truths about the structure of time which have to be true in each model.

The Future

Just as we take the past to be that which the speaker and hearer know to have been the case, we will take the future to be what speaker and hearer expect to happen or obtain. In a dynamic conception of semantics we model the knowledge and the expectations of both speaker and hearer.

Generic information determines to a high extent the temporal structure of future eventualities. Speaker and hearer have certain justified expectations about how present eventualities continue in the future, although they do not need to agree. Talking about the future is a specific type of speech act but not assertion: we do not make assertions about the future. There are several possibilities, but we propose to define in the model a second eventuality structure modelling the future. The future, then, closely corresponds to Dowty [4]'s idea of an inertia world. However, our model theory does not validate the conclusion from 'Mary was building a house' to 'Mary was building a house that she will finish'. Compare Parsons [11, p. 177].

Processes and states

Kamp & Reyle [7] acknowledge two types of eventualities: states and events. They are not very specific with respect to the model theoretic characterization of events and states, however. One of the examples Kamp & Reyle consider is

(1)   a   Mary wrote a letter
        b   Mary was writing a letter

There is a criterion which I adopt from Taylor [16] and which I think has to be taken very seriously saying that states do not take time whereas processes do. Endorsing this criterion, (1b) cannot possibly be taken to be a description of a state. In an eventuality structure, there is time in the sense of change, but not

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[2]This has often been contended, mainly on the basis of—what I think are mistaken— Compositionality considerations. Compare *a.o.* Verkuyl [18]: Verbs are lower in the tree than the subject and object. I have written a Montagovian Fragment in Compositional DRT from which it can be seen that Compositionality violations are avoided. It can be found on my WEB-page http://odur.let.rug.nl/~sjaak/art/Fragment.

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in the sense of a time structure. So let us adapt the criterion in the following form: there is no development in states, whereas there is in (non-atomic or protracted) events. (We will not engage in a discussion of atomic events here.)

Let us call protracted events processes. So there are just processes and states. Consisting of different phases is what we will call internal development: a process develops from an initial phase into a final phase.

The progressive

Saeed [14, p. 116] writes: "aspect allows speakers to view an event in various ways: as complete, or incomplete." 'Viewing something as incomplete' is a rather vague term. To clarify this we cite Parsons [11]: "A progressive event sentence requires only that the eventuality 'go on' for a while". Whether a proces is incomplete or not can be found out by comparing it to its generic design.

Most of the problems raised concerning the progressive seem to disappear once we realize that all eventualities are specific. What is perhaps the hardest part of the progressive is the idea of an incomplete entity. Compare Parsons [11]. An interesting thought might be to identify individuals with the processes and states that they have taken part in. As long as they exist, individuals are incomplete processes.

Conclusion

We need a model theory to make sense of event-variables. Our models model the way we speak. There are two eventuality structures in the model, PAST modelling the past, and FUTURE modelling the future. The model theory is dynamic: the two sets of eventualities are constantly being updated during the discourse. All eventualities in the past are specific, but speaker and hearer have, in general, information about their generic design. The moment of speech corresponds to the latest instant of the past, hence, all information about eventualities relating to the future has to be of an inferred nature. Statements about the future are a certain type of speech act, just like assertions. We have left many things rather vague, in particular, we have not attempted at the analysis of speech acts.

2   Processes

Aspectual adverbials

Consider the following examples:

(2)   De voorstelling heeft drie uur geduurd
            The show has three hours lasted
            The show lasted for three hours

(3)   a   De voorstelling heeft al drie uur geduurd
            The show has already three hours lasted
        b   De voorstelling heeft pas drie uur geduurd
            The show has only three hours lasted

(4)   a   De voorstelling zal/gaat nog drie uur duren
            The show will still three hours last
            The show will last for another three hours
        b   De voorstelling zal/gaat nog wel drie uur duren
            as many as three hours
        c   De voorstelling zal/gaat nog maar drie uur duren
            only three hours

'Al' and 'nog' are aspectual adverbs. I will also call them 'phasal adverbials' following Van der Auwera [1]. Their meanings are closely related to the meaning of the progressive. Phasal adverbials refer to phases of processes, and, therefore, are not to be identified with interval time adverbials. I shall call sentences such as (3a,b) and (4a-c) 'phasal sentences' because of the presence of a phasal particle. Sentences such as (2) differing from phasal sentences only in that they lack a phasal adverb will be referred to as the non-phasal counterparts to the phasal sentences.

(2) and (3a,b) clearly differ in meaning, more specifically, in truth conditions, and so do (2) and (4a,b,c). (3a,b) differ in meaning but not in truth conditions and the same holds for (4a,b,c). (2) is a statement describing how long the complete show lasted. If (3a,b) are true, then three hours passed since the show began, but the show is not over at the moment of speech. If (4a,b,c) are true, it will take another three hours for the show to end. (3a) moreover, expresses that three hours is a considerable long period of time, whereas (3b) expresses that three hours is not that long. (4a) does not express any assessment of the length of the period, (4b) expresses that three hours is a considerable long period of time, whereas (4c) expresses that three hours is not that long.

Monotonic use

In (3a,b) and (4a-c) 'al' and 'nog' are used in a specific type of use which was called 'monotonic' in De Mey [9] following Löbner [8][3]. In their monotonic use the aspectual particles force, so to say, the eventuality to be represented as a(n uninterrupted) process. By a process we understand an eventuality in which different phases can be singled out.

Monotonic 'al' singles out the initial phase of the process, the phase starting off with the beginning and proceeding to a given moment—as a default to NOW,

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[3]Non-monotonic uses of 'al' and 'nog' are not discussed in this paper.

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the moment of speech.[4] Monotonic 'nog' singles out the final phase, the phase starting with a given moment—as a default NOW—and running all the way down to the end. Monotonic phasal sentences express value judgments on the phase singled out.

Here is a simple sketch illustrating the semantic account outlined above:
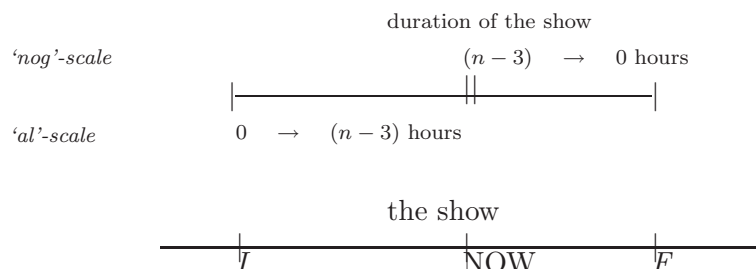
I marks the beginning, F the end of the show. The process running from I to NOW is a specific process belonging to PAST, whereas the process from NOW to F is a specific eventuality in FUTURE. The picture sketches the temporal structure according to the generic design. There are measure phrases (MPs)—'drie uur'—in the sentences under (3, 4). They measure the development that the process goes through on an associated scale. 'Al' is associated with an increasing scale, whereas 'nog' is associated with a decreasing scale. What is of importance is that the complete duration of the show must in some way or other be 'present' in the meanings of these aspectual sentences. That's why we should not confuse phasal and interval adverbials.

MPs may be left out from phasal sentences. Consider the following sentences:

(5)   a   Jan slaapt
               Jan sleeps
               Jan is asleep
        b   Jan slaapt al
               Jan sleeps already
               Jan is already asleep
        c   Jan slaapt nog
               Jan sleeps still
               Jan is still asleep

As to the meaning of (5b,c), let us say that (5b) expresses that Jan went to sleep earlier than the addressee may have thought. (5c) expresses that the moment at which Jan will awake is later than the addressee may have thought.

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[4]However, this does not hold for narrations.

As there are no MPs in (5b,c), these phasal sentences do not express anything regarding the duration of the length of the various phases of the process. Hence, we may doubt whether the three sentences under (5) differ in truth conditions. Yet, 'al' and 'nog' do focus on phases of the process—'al' on the initial phase, 'nog' on the final phase—and according to our analysis they express certain assessments with respect to these phases. (5a), then, is to be construed as expressing that the initial phase—the period that Jan has been asleep running from the moment Jan fell asleep until NOW—is long, whereas (4c) is to be construed as expressing that the final phase–the period that starts by NOW and will end when Jan awakes—is long.

## The semantic value of monotonic 'al' and 'nog'

The main semantic function of monotonic 'al' and 'nog' is to present an eventuality as a process. Of course, when the eventuality at hand is already a process, nothing much changes. However, consider the following example

(6)   a   Ik heb dertig gulden uitgegeven
              I have thirty guilders spent
              I spent thirty guilders
        b   Ik heb al dertig gulden uitgegeven
              I have already thirty guilders spent
        c   Ik heb nog dertig gulden over (om uit te geven)
              I have still thirty guildes left (to spend)

Spending is in general not a process. Normally we will understand (6a) as about a single action of spending thirty guilders, which is an event. This is different in (6b,c): here we have to do with the spending of thirty guilders as a process. It may have taken more than just one spending occasion to spend this amount. Thirty guilders is the total amount spent over a period.

There are two features that were also part of the analysis of the examples under (2,3,4). First, in (6b) the spending of thirty guilders is just the initial phase of the full process. We are not just talking about spending money, we are talking about spending this particular amount of money. Second, also here the scales on which the developments are marked run in reversed directions. What is interesting is that we have to use different words here: 'spend' in (6b), 'over-zijn' in (6c). Moreover, 'over-zijn' ('to be left over') definitely looks as a state, not as a process. Yet, the presence of the phasal adverbial forces us to represent this eventuality as a process.

Compare the following illustration:

amount to be spent

'nog'-scale $(n-30)$ → 0 guilders

'al'-scale 0 → $(n-30)$ guilders

spending money

I NOW F
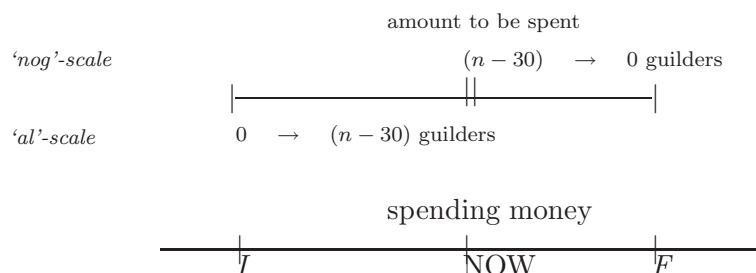
3 Facts

Dutch compared to English

In spite of the fact that all the Germanic languages have three different past time tenses, they differ considerably as far as their uses go. English and Dutch, *e.g.*, differ in that in English the simple past is the default tense in all uses. In Dutch the imperfect is the default tense only in narrations. In other contexts the present perfect is the default tense. In Dutch out-of-the-blue contexts the present perfect is obligatory.

The semantic value of the present perfect is commonly described in terms of completion (compare Saeed [14, p. 108]) or result states (compare Kamp & Reyle ([7, p.558]). Even if we take the correctness of such analyses for English for granted they must be wrong for Dutch. Let us bear in mind that in out-of-the-blue-contexts the simple past cannot be used in Dutch. So suppose it rained and we want to report on it. Furthermore, suppose we can only use the present perfect if the result of the rain is still visible, *e.g.* the streets are still wet. The absurd conclusion would then be that we could not report on rain in Dutch in situations where the streets are no longer wet.

Semantic analysis

The following semantic analysis

(7) a AT 0 Jan beat Piet
     b It is a fact AT NOW that AT 0 Jan beat Piet

of the sentences

(8) a Jan versloeg Piet
        Jan beat Piet
     b Jan heeft Piet verslagen
        Jan has Piet beaten

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gives an idea of the kind of interpretation that I propose. NOW refers to the actual speech time, whereas AT 0 is a zero dating time adverbial (DTA).

Facts are ontologically characterized by the following two features: facts arise at certain moments and then persist for ever. In the latter feature they are definitely different from states, events or processes which end at a given moment[5].

Tenses

The main differences between Dutch present perfect and simple past sentences are to be found in sentences without DTAs. In sentences with a DTA, the difference is a question of, say, style or dialect. I leave sentences with a non-zero DTA out of consideration. Zero DTAs must be accorded some value, say, by anaphora or by deixis.

In my analysis I assume an essentially Reichenbachian position. Basically, all I propose is a different interpretation of Reichenbach's reference time.

Both the simple past and the present perfect are tenses. The typical function of tense is to anchor the eventuality to the time axis. In this way the position of the eventuality (the e-time) on the time axis relative to the speech point is being fixed. In our model theory the time axis is the set of reals and it is LOC which does the anchoring. The eventuality is not thereby dated. Dating is the mapping of the time axis to some given calendar. An example of a (non-zero) DTA is 'at January 20th 1999'. Often, the calendar is presupposed and not explicitly referred to: 'at ten o'clock this morning', 'yesterday', 'immediately after he arrived', 'once upon a time'. The mapping to the calendar is such that the value of the e-time is included within the period referred to by the DTA. We assume that, in general, DTAs introduce discourse referents. For more details see the Fragment referred to earlier.

According to the analysis of the present perfect ventured here, facts have a two-layered temporal structure, they are compound eventualities. We will refer to the two layers as the anchoring layer and the content layer. There is a DTA at both layers of a present perfect. The DTA at the anchoring layer is not expressed, but non-zero: AT NOW. The DTA at the content layer may be zero. The simple past, on the other hand, has just one—zero or non-zero—DTA. Zero DTAs must, in some way or other, find an interpretation.

There is a typical relation between the two layers of a fact: if the content level expresses a truth, then so does the anchoring level. This makes the anchoring layer seem superfluous. However, the non-overt DTA at the anchoring layer—deictically referring to the moment of speech—gives the construction its sense. In a discourse the moment of speech constantly moves forward. This is a neat model of the 'eternal truth' of facts.

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[5]We may construct models for sentences which refer to Zeus or the Purgatory. This is a different type of eternity, as we will explain in a moment.

The absence of dating time adverbials (DTAs)

DTAs, then, play different roles in present perfect sentences than they do in simple past sentences, and, hence, their absence has to be assessed differently as well[6].

In a present perfect sentence the explicit DTA dates the time during which the eventuality which forms the content of the fact took place, hence, the time at which the fact arose. The present perfect sentence DTA does not introduce a discourse referent, or so we assume.

If it is zero it need not be accorded an interpretation by deixis or anaphora. The reason is that it is often not deemed necessary to specify this time. Reasons for omitting the DTA—the time at which the fact arose—are either that the speaker does not know this time or thinks specifying this time is unimportant, *e.g.*, because the results (the fact!) of the event are focused on and these may still be present in the context of use. Or the eventuality referred to may have happened quite recently and the speaker assumes that she is breaking news to the hearer. In a great number of Dutch DTA-less present perfect sentences we have to think of the eventuality having occurred during the 'extended now'.

The picture is different for Dutch DTA-less simple past sentences. The Dutch simple past tense has a tendency to be linked to a time mentioned in a preceding clause. In our models, a simple past sentence DTA introduces a discourse referent. Hence, the simple past in such a sentence is either construed anaphorically or deictically. The latter is the case in a majority of Dutch simple past sentences. We then have to fill in: *at that time*, where the hearer is supposed to know which time that is.

There is an interesting fact that may seem to corroborate my analysis of the semantic difference between simple past and present perfect to which we turn now.

Anaphoric tense

Dynamic semantics has added an important dimension to natural language semantics as it is capable of accounting for certain aspects of meaning that truth conditional semantics cannot account for. Compare for a relevant example

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[6]Another difference that we find is that the sentences refer to different periods. Whereas the present perfect sentence refers to a period, the corresponding simple past sentence refers to just one moment of this period. Here is an example illustrating this:

(9)   a   Je bent al op. Kon je niet slapen?
             You are already up. Could you not sleep?
             You are up already. Couldn't you sleep?
       b   Je bent al op. Heb je niet kunnen slapen?
             You are already up. Have you not can sleep?

The first sentence 'Je bent al op' suggests that there has been some unexpectedly early moment at which the speaker got up. In (9a) the simple past in the second sentence refers back to this moment in that by (9a) the speaker expresses her assumption that there was a moment at which the hearer awoke and could not go back to sleep again. In (9b) this is not the case: the hearer is supposed not to have slept all night.

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Van Eijck & Kamp [5, p. 194]. I now discuss another example where dynamic semantics can account for a phenomenon that looks pretty much unexplicable in the framework of static semantics. Consider the following minimal pair:

(10)   a   De politie heeft gister een man gearresteerd
            The police has yesterday a man arrested
            die deelnam aan een protest-demonstratie
            who took-part in a protest demonstration
            Yesterday the police arrested a man
            while he took part in a protest demonstration

        b   De politie heeft gister een man gearresteerd
            The police has yesterday a man arrested
            die heeft deelgenomen aan een protest-demonstratie
            who has taken part in a protest-demonstration
            Yesterday the police arrested a man
            who took part in a protest demonstration

Note the present perfect in the main clause. As we observed earlier, it is obligatory in an out-of-the-blue utterance.

(10a) expresses simultaneity: the apprehension took place during the demonstration. This is not the case in (10b): the seizure can be construed either as preceding the demonstration, as being simultaneous with it, or even as following it. All the Dutch speakers I asked concur in this intuition.

We assume that DTAs in general create discourse referents. Zero DTAs have to find an antecedent. It is here that simple past sentences and present perfect sentences differ.

We will say that in (10a) the simple past in the subordinate clause is anaphoric. As we construe the sentence as expressing that the seizure took place during the demonstration we take the event time of the main clause to be the antecedent. The present perfect of the subordinate clause of (10b), however, cannot not be construed as anaphoric. Present perfect sentences have a non-zero DTA in their anchoring layer, and, hence, need not find an antecedent. The zero-DTA in the content level does not need to find an antecedent either. What might be operative here is a kind of intervention principle: the intervening anchoring layer DTA NOW prevents the content layer r-time from being filled in by the higher clause event-time.

It must be noted that an anaphoric construal of a Dutch DTA-less simple past sentence is rather rare. It is not difficult to find sentences of a seemingly identical syntactic structure that do not impose a simultaneous reading. A deictic construal is much more common.

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