Counting events

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Not many scholars in Ancient Philosophy may be aware of the fact that Alexander Mourelatos has made a truly significant contribution to a second field. It is the field of natural language semantics where a single paper by him (*Events, processes, and states*, published in 1978 and then reprinted with a few changes in 1981) has been cited over 1300 times,[1] more than any other of his papers. In this paper Mourelatos argues for the by now commonly accepted distinction between events, processes and states as ontological categories that are highly relevant linguistically. Events are set apart from the other two categories as those *eventualities* (a cover term later introduced by Emmon Bach (1986) for whatever categories one would like to distinguish in this domain) that are inherently countable. Thus, the distinction between events on the one hand and states and processes on the other is analogous to that between the referents of count and mass nouns (*table* versus *water*) in the nominal domain: we cannot count water since whenever we have something to which the word *water* applies it also applies to its parts (and the parts of its parts, up to the level of molecules), so we would end up with uncountably many 'waters', but we can count tables, since a part of a table is not again a table. Processes and states are like water: they are homogeneous, or homoeomerous (like-parted), as Mourelatos prefers to call it following the ancients. Events are like tables: they do not have similar parts.

In addition, Mourelatos contends that this distinction comes to the fore in languages with a grammatical perfective–imperfective opposition. There perfective aspect is used for events and imperfective aspect for processes and states, Mourelatos argues, an idea that was soon to be applied to Ancient Greek by David Armstrong in his paper *The Ancient Greek Aorist as the Aspect of Countable Action*.

In his paper Mourelatos explains extensively how he builds on work from others, most notably Zeno Vendler, Anthony Kenny, Robert Allen, Geoffrey Leech, and Barry Taylor. One of the most important contributions of the paper is that it forms a bridge from the more philosophical ideas about ontology and action to central linguistic questions. A bridge that was clearly a timely one, as history reveals: In the decades after the publication, the ideas from *Events, processes and states* have been taken over, worked out, formalized and implemented within larger linguistic theories by semanticists from all over the

[1] `https://scholar.google.nl/scholar?start=0&q=alexander+mourelatos&hl=en&as_sdt=0,5`

world, mostly with the aim of better understanding aspect, in particular the opposition between imperfective and perfective aspect. In this paper I will give a glimpse of this reception. Since it is impossible to give a complete overview, I will be highly selective, focussing on the more formally-oriented semantic work (using logic as an important tool in analyzing natural language meaning) and on its application to Ancient Greek. I will start with some introductory notes on aspect.

1 Some introductory notes

I use the word *aspect* in a rather broad sense. It includes both grammatical aspect and aspectual classes or *Aktionsart*. The distinction between perfective (for Ancient Greek usually called aoristic) and imperfective aspect is a distinction in grammatical aspect. Most verbs in Ancient Greek and Slavic languages come in two forms: aoristic/perfective and imperfective forms, clearly distinguished by specific morphemes. But the verb itself, without grammatical aspect, also has certain properties that are relevant aspectually. On the basis of these properties, verbs, or better: predicate-argument structures, that is, the verb with its arguments, are divided into aspectual classes or *Aktionsarten*.

I use infinitival expressions like *John run* to refer to the predicate-argument structure, that is, the verb with its arguments, abstracting away from tense and grammatical aspect. These expressions fall into various aspectual classes. One important division is that between the classes of telic and atelic predicates. Some predicates introduce inherent boundaries for eventualities, for example, *John eat an apple* and *John run two miles*. They belong to the class of *telic* predicates. Others do not introduce inherent boundaries, for example, *John run* and *John be blond*, and are called *atelic*. Moreover, a subclass of the atelic predicates is set apart as the *stative* predicates. Examples are *John be blond* and *John be at the pub*. One characteristic of stative predicates is that they do not combine with the progressive in English, as in (1) (the asterisk * indicates ungrammaticality):

(1) a. *John is being blond.
b. *John is being at the pub.

The infinitival expressions such as *John run* and *John eat an apple* are taken to translate in a formal language as predicates over eventualities, which denote properties of eventualities, modeled as sets of eventualities. For example, *John run* denotes the set of eventualities of which it is true that it is a running eventuality by John.

2 Aspectual classes

One of the first important questions that came up in the semantic discussion after the publication of *Events, processes and states* is whether the distinction

between events, processes and states is a division within the domain of eventualites themselves or only at the level of predicates of eventualities (denoting sets of eventualities). In other words, do we in our world (or model of the world) have things that are events, other things that are processes and again other things that are states, or do we only have eventive, processive, and stative *predicates*? While Mourelatos' paper had suggested the former, a decade later Krifka argued for the latter and showed how this could be worked out formally.

Krifka's (1989a, 1989b, 1998) work aims at capturing the analogy between the mass-count distinction in the nominal domain and the atelic-telic distinction in the verbal domain. At the heart of his analysis is the Mourelatosian idea that the difference in both oppositions has to do with countability. Krifka departs from Mourelatos, however, in that he applies this distinction only at the level of the predicate (or more accurately, the denotation of the predicate, a property or set of eventualities), and not at the level of the single eventuality itself. His motivation is that intuitively one can describe one and the same eventuality using both a telic (eventive) and an atelic (stative or processive) predicate. A run eventuality by John, for example, can be described with the telic *John run a mile* as well as the atelic *John run*. If one would, however, assume the existence of telic and atelic eventualities and moreover assume that the denotation of a telic predicate is a set of telic eventualities, and the denotation of an atelic predicate a set of atelic eventualities, one would be forced to say that we have to do with two different eventualities (otherwise, one and the same eventuality would be both telic and atelic), which is technically possible (see for example Bach 1986), but maybe not very intuitive. So rather than in the eventualities themselves, the difference has to be sought in the predicates of eventualities (denoting sets of eventualities, rather than single eventualities).

To capture the distinction between telic and atelic predicates in a formal way, Krifka structures the domain of eventualities as a join semi-lattice $\mathfrak{E}$ without bottom element (following Link 1983 for the nominal domain). This makes it possible to define a proper part-of relation $\sqsubset$ and subsequently define the distinction between telic and atelic predicates formally with the use of this relation.

Krifka argues that telic predicates are quantised, which he defines as follows:

(2) A property P is quantised iff for all e, e' if $P(e)$ and $e' \sqsubset e$ then $\neg P(e')$

A predicate is quantised if and only if no eventuality that is a proper part of an eventuality in the extension of the predicate is also in its extension. For example, a proper part of an eventuality in the extension of the telic predicate *John build a house* is not likewise in the extension of *John build a house* (in the same way as a proper part of a bottle of water does not count again as a bottle of water).

Atelic predicates, on the other hand, are non-quantised or homogeneous. Consider the predicate *John walk*, for example: a part of an eventuality in the extension of this predicate is in its extension too, except when the parts get too small to count as walking (in the same way as a part of water still counts as

water, up to the level of molecules).[2]

In this way, one and the same eventuality can be both in the set of *John run a mile* and in the set of *John run* eventualities, but then the parts of this eventuality will only be in the latter set. In other words, we do not have to assume a difference between events, processes and states as such, only between different kinds of predicates.

This Mourelatosian idea of quantised versus homogeneous reference in the domain of eventualities, formalized by structuring the domain of eventualities in a certain way, helps Krifka to derive two other linguistic observations about aspect. The first is the interaction with time-frame adverbials such as *on Sunday*:

(3) a. Mary wrote a letter on Sunday.
b. Mary was ill on Sunday.
c. Mary wrote on Sunday.

It has been observed (e.g. Kamp and Reyle 1993, Dowty 1986) that for (3a) to be true, the whole writing eventuality has to take place within the Sunday, i.e. at the end of the day there has to be a letter. This does not hold for (3b): it is possible that Mary fell ill on Saturday and recovered on Monday. (3c) behaves the same as (3b) in this respect. This difference follows automatically from Krifka's account (see Krifka 1989b:172-173). Figure 1 shows this graphically. If we assume that a time-frame adverbial like *on Sunday* requires that there be an eventuality in the extension of the predicate whose runtime is included in the time denoted by the adverbial (independent of the predicate being telic or atelic), the correct interpretations follow directly from the fact that (3a) has a telic (= quantised) predicate, whereas (3b) and (c) have an atelic (= non-quantised) predicate. Since *Mary write a letter* is quantised, it is impossible that an eventuality in the extension of this predicate (e_1 in the upper part of Figure 1) is part of another eventuality in the extension of the predicate (for otherwise this latter eventuality would have a part (viz., the former eventuality) for which the predicate holds likewise, and, hence, the predicate would not be quantised). That is to say, eventualities in the extension of a quantised predicate are always *maximal* with respect to this predicate. Therefore, from the fact that there is an eventuality in the extension of *Mary write a letter* whose runtime is included in the time denoted by *on Sunday*, it follows that the *maximal* eventuality is included in this time, which gives the correct interpretation for (3a).

Mary write or *Mary be ill*, on the other hand, are homogeneous, and therefore it is possible that eventualities in the extension of these predicates (e_1 in the lower part of Figure 1) are parts of eventualities of which the predicate holds as well (e_2 or e_3). In other words, eventualities in the extension of a homogeneous predicate need not be maximal with respect to this predicate. So, if it is asserted that there is an eventuality in the extension of *Mary be ill* whose runtime is included in the time denoted by *on Sunday*, it is left open whether this is the

[2]Krifka in addition seems to require that atelic predicates are cumulative (Krifka 1989a:90 and Krifka 1989b:158), but I simplify here.

maximal illness eventuality or that the maximal eventuality includes the Sunday. This is exactly what we want.

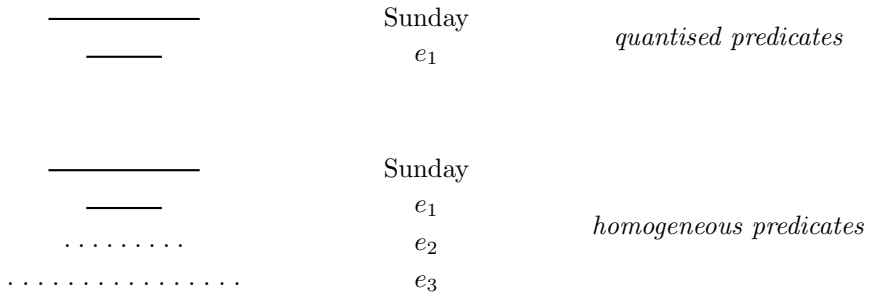

Figure 1: The interaction of quantized and homogeneous predicates with time-frame adverbials

In a similar way, this formalisation of telicity can account for the differential behaviour between telic and atelic predicates with respect to narrative progression. Consider (4) (based on Kamp and Reyle 1993:521):

(4) A man entered the White Hart. He was ill. Bill served him a beer.

The natural interpretation is that the serving of beer takes place after the entering, but not necessarily after the illness. Explaining this and similar observations about the influence of aspect on the temporal structure of discourse became one of the most influential enterprises in semantic-pragmatic research in the eighties (see, for example, Kamp and Rohrer 1983, Kamp and Reyle 1993, Krifka 1989b, Dowty 1986, Hinrichs 1981, Partee 1984, and Hinrichs 1986).

Dowty's and Krifka's versions are particularly elegant as they do not need to make any assumptions about a difference between events, processes and states in terms of temporal relations to other time points made salient in the discourse, as others do. It is the very property of quantisedness (or *quanticity*, as Mourelatos would prefer to say) that does the work. To derive the interpretation of (4), we only need to assume that eventualities are introduced in the order in which they occurred. Under this assumption, we get that there is an eventuality of the man being ill (e_2 in Figure 2) that follows his entrance (e_1), but this does not exclude the possibility (due to the fact that the predicate *be ill* is not quantised) that there is also a larger being ill eventuality (e_2' or e_2'') that includes the entering. For the same reason, we get that the serving of a beer (e_3) follows *an* eventuality of being ill (e_2), but this need not be the maximal (i.e. complete) eventuality of being ill. The serving of beer may be included in the complete eventuality of being ill. On the other hand, the serving of beer (e_3) must follow the entering (e_1), for both are quantised.

In this section we have seen how Mourelatos' distinction between events,

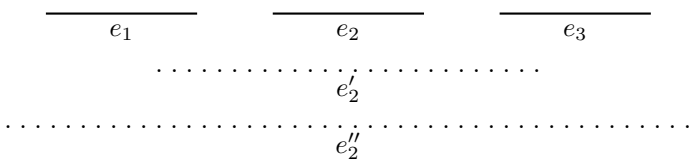

Figure 2: Narrative progression with homogeneous and quantised predicates

processes and states has helped semanticists understand the influence of aspectual classes on the temporal interpretation of discourse, in particular on the interaction with time-frame adverbials and on narrative progression. In the next section the focus will be on grammatical aspect.

3 Grammatical aspect

As mentioned before, Mourelatos' paper had suggested that the difference between perfective and imperfective aspect in languages that make this distinction (e.g. Ancient Greek, Slavic languages) also corresponds to the same distinction in aspectual classes, with perfective aspect being used for events and imperfective aspect for processes and events. What has become of this idea in later semantic work? I start this discussion with two theories that stick to it closely, followed by two where this idea is still present but only as a secondary contribution of grammatical aspect.

3.1 Krifka and de Swart: a primary role for homogeneous versus quantised reference

Since we have aspectual classes both at the level of the predicate-argument structures themselves, and one level up, when grammatical aspect has been attached to it, and the two need not be the same (we can for example have an aorist with a predicate that is processive itself), the idea has come up that grammatical aspect is a linguistic operator that may *change* the aspectual class of an expression. Thus, Krifka proposes that the semantics of perfective aspect is an operator that maps (quantised or homogeneous) predicates to quantised predicates, whereas the semantics of imperfective aspect maps (quantised or homogeneous) predicates to homogeneous ones. He uses typed lambda-calculus to formalise his account (see Gamut (1991) or Dowty, Wall, and Peters (1981) for an introduction).

By way of example, I here give Krifka's perfective operator, which he calls `AOR`, in a simplified version, `AOR′`, to get the gist of its working:

(5) $\texttt{AOR}' = \lambda \texttt{P} \lambda \texttt{e}[\texttt{P}(\texttt{e}) \wedge \forall \texttt{e}'[\texttt{e} \sqsubset \texttt{e}' \rightarrow \neg \texttt{P}(\texttt{e}')]]$

AOR′ maps a set of eventualities in the extension of a predicate on a subset: the set of (locally) maximal eventualities with respect to this predicate. That is, if e_2, e_2', and e_2'' from Figure 2 are in the extension of a predicate P, only e_2'' is in the extension of AOR′(P). Note that AOR′(P) is a quantised (telic) predicate and that AOR′ has no effect when P is a quantised predicate itself (since all eventualities in the extension of a quantised predicate are already maximal with respect to this predicate).

De Swart (1998) also holds on to the Mourelatosian idea that the perfective-imperfective distinction is a distinction between quantised versus homogeneous reference in the domain of eventualities. She applies it to the French opposition between the passé simple and imparfait. She departs from Krifka, however, by not treating these as aspectual operators, changing the aspectual class of an expression, but rather as what she calls *aspectually sensitive past tense operators*.[3] This departure is motivated by her aim to explain the variation in interpretation of both the passé simple and the imparfait without postulating ambiguous meanings for the two. The passé simple can, for example, not only receive a complexive interpretation, as in (6), referring to a maximal eventuality, from beginning to end, but also an ingressive one, referring only to the begin point, as in (7):

(6) Jeanne d'Arc fut une sainte.
Jeanne d'Arc be.PST.PFV.3SG a saint
"Jeanne d'Arc was a saint."

(7) (Soudain,) Jeanne sut la résponse.
(Suddenly,) Jeanne know.PST.PFV.3SG the answer
"(Suddenly,) Jeanne knew the answer."

Due to this variation, Krifka's AOR′ cannot be all there is to the meaning of perfective aspect. It could represent the complexive reading in (6), but we would need a different operator for the ingressive interpretation in (7). Since de Swart aims at explaining the variation without postulating an ambiguous semantics, this won't do for her. Therefore, de Swart still holds on to the idea that the passé simple and imparfait are sensitive to the quantised versus homogeneous distinction, but implements this in a different way. As I said, rather than aspectual operators, de Swart claims that the imparfait and passé simple are *aspectually sensitive past tense operators*, that is past tense operators with restrictions on the aspectual class of their input. That is, they are not functions from sets of eventualities onto sets of eventualities, as AOR′ was, but they *select for* particular sets of eventualities, the passé simple for sets of quantised eventualities, the imparfait for sets of homogeneous eventualities.[4] Should the input requirements not be satisfied, as in (6) and (7) where we have the passé simple

[3] This idea is already implicitly present in Kamp (1992).

[4] Note that de Swart goes back to Mourelatos' distinction between events, processes, and states as an ontological distinction, differing in this respect from Krifka's account.

with stative predicates, *coercion* comes into play. Coercion is the phenomenon that if there is a mismatch between the input requirements of an operator and the properties of its argument, the argument is reinterpreted in such a way that it satisfies the requirements. This reinterpretation allows the two to combine. An example is given in (8):

(8) a. #John is being funny.
a′. [$_s$ PRES [$_s$ PROG [$_{ns}$ C$_{s\rightarrow ns}$ [$_s$ John be funny]]]]

As we have seen in (1), the progressive usually does not combine with stative predicates. However, in contrast to these sentences, (8a) is grammatical, in spite of the stative nature of *John be funny*. This is seen as a coercion phenomenon: there is a mismatch between the requirements of the progressive operator and the (stative) predicate *John be funny* and this mismatch is resolved by reinterpretation of the stative expression as a non-stative expression, corresponding, for example, to *John act funny* (see e.g. Moens 1987). That is, the class of the argument is *coerced* by the progressive operator into the required class. In (8a′), C$_{s\rightarrow ns}$ indicates this coercion operator from a set of stative to a set of non-stative eventualities (with the subscript *ns* for non-stative). After this reinterpretation, the progressive operator can apply. The stative expressions *John be tall* or *John be at the pub*, on the other hand, cannot be reinterpreted as a non-stative expression, since it is hard to think of a process that is associated with being tall or being at a pub, which explains the contrast between (1) and (8a).

How does this relate to the passé simple and imparfait? De Swart accounts for the variation in interpretation that we saw when we compared (6) and (7) by treating the shifts in aspectual class as a coercion phenomenon. When the passé simple combines with a homogeneous (non-eventive) predicate we get coercion: the homogeneous predicate is reinterpreted as a quantised (eventive) one (either by making it maximal, as in (6) or by taking the begin point (as in (7)), and once the input requirements are satisfied, the tense operator can apply. The imparfait work the same, with the difference that it coerces its argument into a homogeneous (stative or processive) predicate.

Although the variation in interpretation intuitively fits well with a coercion analysis (the mismatch somehow has to be resolved, and there may be more than one way in which this can be done), the applicability of de Swart's analysis is restricted to languages like French where we find the perfective–imperfective distinction only in indicative forms and even there only in the past tense. In such languages the forms at hand can be treated as basically past tense operators. In many languages, such as Ancient Greek, however, we find the perfective–imperfective opposition throughout the verb paradigm. Table 1 gives an overview of the imperfective and aoristic forms of the verb λύειν *luein* 'to loosen'. ἐ- *e-* is a past tense marker; -σα *-sa* is a marker for aoristic aspect.

As argued extensively in Bary (2009), this difference between French and Ancient Greek makes it unwanted to extend de Swart's analysis (or any modifications of it) to Ancient Greek and other languages where the opposition between

		imperfective aspect		aoristic aspect	
finite	indicative (past tense)	ἔλυον	*eluon*	ἔλυσα	*elusa*
	subjunctive	λύω	*luō*	λύσω	*lusō*
	optative	λύοιμι	*luoimi*	λύσαιμι	*lusaimi*
	imperative	λῦε	*lue*	λῦσον	*luson*
nonfinite	participle	λύων	*luōn*	λύσας	*lusas*
	infinitive	λύειν	*luein*	λῦσαι	*lusai*

Table 1: The aoristic–imperfective distinction for the verb λύειν *luein* 'to loosen'.

perfective and imperfective aspect is found throughout the verb paradigm. It turns out that if we hold on to de Swart's aim to explain the variation in interpretation, which we also see in these languages, without postulating an ambiguous semantics, we have to depart a little further from the Mourelatosian idea that the perfective–imperfective distinction is the distinction between quantised and homogeneous reference. Abstracting away from the difference between aspectual operators and aspectually sensitive tense operators, what Krifka and de Swart have in common is that they treat the telic–atelic distinction and the perfective–imperfective distinction as semantically basically the same (both being the distinction between quantised and homogeneous reference); what differs is only the level at which these notions apply. Since a theory in this spirit is not applicable languages like Ancient Greek and Slavic languages, in the next section I will move to theories in which the contribution of grammatical aspect is not primarily a shift in aspectual class. However, as we will see, even there the homogeneous versus quantised distinction will continu to play an important role.

3.2 Von Stechow et al. and Bary: a secondary role for homogeneous versus quantised reference

In Klein (1994)'s account of grammatical aspect its primary contribution is not a shift in aspectual class but rather a specification of the temporal location of the eventuality. More precisely, aspect is taken to locate the eventuality described by the predicate with respect to a so-called *topic time*. Topic time is a notion introduced by Klein (similar in spirit to Kamp's location time) for the time about which the speaker makes his utterance. This time is usually recoverable from the discourse. This more temporal view on aspect has been used and worked out formally by many semanticists. Here I mention Gerö and von Stechow (2003), Paslawska and von Stechow (2003), Bary (2009) and Bary and Egg (2012).

Here I follow Bary's (2009) version, developed for Ancient Greek. Imperfective aspect then indicates that the eventuality is going on at the moment about which we speak, that is, the eventuality's run time includes the topic time. Aoristic aspect, by contrast, indicates that the eventuality takes place

within the time about which we speak: its runtime is included in the topic time. This semantics of aspect directly yields what Ancient Greek grammars consider the basic opposition between imperfective and aoristic aspect: *going on* versus *completed* (see e.g. Rijksbaron 2002:1).

Example (9), from Bary (2009), illustrates this.

(9) τό μευ νάκος ἐχθὲς ἔκλεψεν.
to meu nakos echthes eklepsen.
the.ACC I.GEN skin-coat.ACC yesterday steal.PST.AOR.3SG
"He (= Lacon) stole my skin-coat yesterday." Theoc. *Id.* 5.2

In (9), the topic time is denoted by the adverbial ἐχθές 'yesterday'.[5] Aoristic aspect indicates that the event expressed by the verb, the stealing, is included in the topic time and hence completed within the time about which we speak.

Has this more temporal interpretation of grammatical aspect now obviated the need for a contribution in terms of homogeneous versus quantised reference? No, it hasn't. We see this when we look at (6) where we have an atelic predicate *Jeanne d'Arc be a saint* combined with perfective aspect. Recall that aoristic aspect states that there is an eventuality e to which the predicate applies whose runtime is included in the topic time. For quantised (telic) predicates, as in (9), this entails that the maximal, that is, complete eventuality is included in the topic time, since eventualities in the extension of a quantised predicate are by definition maximal with respect to the predicate, as we have seen in section 2. This entailment does not hold for homogeneous (atelic) predicates, as in (6). An eventuality in the extension of an homogeneous predicate need not be maximal with respect to the predicate, and, hence, from the existence of an eventuality that makes a homogeneous predicate true and that is included in the topic time, it cannot be concluded that the maximal eventuality is included in the topic time as well. This is illustrated in Figure 3. The dotted line indicates the possibility of a larger eventuality to which the predicate applies.

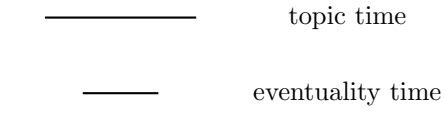

Figure 3: Aorist with homogeneous predicates

[5]This is a simplification. See Reyle et al. (2007:578–582) for a discussion of the temporal relations involved in the semantics of time-frame adverbials such as *yesterday*.

So, on the basis of its semantics we would expect that the aorist can also be used if the maximal eventuality includes the topic time, as long as some eventuality of the right kind is included in the topic time. This, however, is not the case. Hence, for the interpretation of completion with homogeneous predicates, this semantics of the aorist does not suffice. The interpretation we want to get is that the maximal eventuality is included in the topic time, whereas the semantics gives us only that *some* eventuality is included in the topic time.

Bary solves this problem by restricting the aorist to quantised predicates. This means that if the aorist is confronted with a homogeneous predicate, a coercion operator comes into play that maps the homogeneous predicate onto a quantised one, yielding either a complexive interpretation, as in (6), or an ingressive one (7).

Bary proposes that the rationale behind the proposed restriction of the aorist to quantised predicates is that without this restriction some situations describable by the imperfective of a predicate `P` could be expressed using the aorist of `P` as well. This would be the case when an eventuality e to whose runtime `IMP(P)` applies has at least one part e' that is also in the extension of `P` and this second eventuality is so small that its runtime is located within the topic time. Figure 4 illustrates this situation. In this situation the imperfective of `P` can be used

Figure 4: Overlap between aorist and imperfective with homogeneous predicates

as there is a `P` eventuality whose runtime includes the topic time, viz. e. But without further constraint the aorist could be used as well, for there is also a `P` eventuality whose runtime is included in the topic time, viz. e'.

This unwanted potential overlap between imperfective and aorist is ruled out if the aorist is restricted to quantised predicates. Gerö and von Stechow (2003:263) in addition have a similar restriction of imperfective aspect to homogeneous predicates. We see that in this way, although the primary contribution of grammatical aspect has become a temporal one, there still is a secondary, derived contribution in terms of homogeneous and quantised reference, originating from Mourelatos' paper.

4 Conclusion

In this short note we have seen a glimpse of the vast reception of Mourelatos' seminal paper *Events, processes and states* in semantic research. Multiple aspects of the paper have been taken over and worked out, most importantly the fundamental typology of events, processes and states, where the former but not the latter two are countable. First, we have seen how it raised the question whether there really are eventualities that are events, others that are processes and still others that are states, or that one and the same eventuality can be described both with a eventive and with a non-eventive predicate. We have also seen how the typology has been used to account for the interaction between aspect and time adverbials and the influence of aspect on narrative progression. In addition, we have seen that the idea that countability is also what forms the difference in the perfective – imperfective distinction has been an impetus to the study of the meaning of grammatical aspect in the decades to follow, up to the present day. Arguably, the most important contribution of Mourelatos' prioneering paper is having brought together ideas in philosophy and linguistics, boosting our understanding of what distinctions are apparantly so important for us humans that they have made it into our language system.

References

Armstrong, D. (1981). The Ancient Greek Aorist as the aspect of countable action. In P. J. Tedeschi and A. Zaenen (Eds.), *Tense and Aspect*, pp. 1–11. New York: Academic Press.

Bach, E. (1986). The algebra of events. *Linguistics and Philosophy 9*, 5–16.

Bary, C. (2009). *Aspect in Ancient Greek. A Semantic Analysis of the Aorist and Imperfective*. Ph. D. thesis, Radboud University Nijmegen.

Bary, C. and M. Egg (2012). Variety in ancient greek aspect interpretation. *Linguistics and Philosophy 35*, 111–134.

Dowty, D. R. (1986). The effects of aspectual class on the temporal structure of discourse: semantics or pragmatics? *Linguistics and Philosophy 9*, 37–62.

Dowty, D. R., R. E. Wall, and S. Peters (1981). *Introduction to Montague Semantics*. Dordrecht: Reidel.

Gamut, L. T. F. (1991). *Logic, Language, and Meaning 2: Intensional Logic and Logical Grammar*. Chicago: University of Chicago Press.

Gerö, E.-C. and A. von Stechow (2003). Tense in time: the Greek perfect. In R. Eckardt, K. von Heusinger, and C. Schwarze (Eds.), *Words in Time: Diachronic Semantics from Different Points of View*, pp. 251–269. Berlin: Mouton de Gruyter.

Hinrichs, E. (1981). Temporale Anaphora im Englischen. Zulassungsarbeit Universität Tübingen.

Hinrichs, E. (1986). Temporal anaphora and discourses of English. *Linguistics and Philosophy 9*, 63–82.

Kamp, H. (1992). Temporal reference in French. Unpublished progress-report.

Kamp, H. and U. Reyle (1993). *From Discourse to Logic*. Dordrecht: Kluwer.

Kamp, H. and C. Rohrer (1983). Tense in texts. In R. Bäuerle, C. Schwarze, and A. von Stechow (Eds.), *Meaning, Use, and Interpretation of Language*, pp. 250–269. Berlin: de Gruyter.

Klein, W. (1994). *Time in Language*. London and New York: Routledge.

Krifka, M. (1989a). Nominal reference and quantification in event semantics. In R. Bartsch, J. van Benthem, and P. van Emde Boas (Eds.), *Semantics and Contextual Expression*, pp. 75–115. Dordrecht: Foris Publications.

Krifka, M. (1989b). *Nominalreferenz und Zeitkonstitution*. München: Fink.

Krifka, M. (1998). The origins of telicity. In S. Rothstein (Ed.), *Events and Grammar*, pp. 197–235. Dordrecht: Kluwer.

Link, G. (1983). The logical analysis of plurals and mass terms: a lattice-theoretical approach. In R. Bäuerle, C. Schwarze, and A. von Stechow (Eds.), *Meaning, Use and Interpretation of Language*, pp. 302–323. Berlin and New York: Walter de Gruyter.

Moens, M. (1987). *Tense, Aspect and Temporal Reference*. Ph. D. thesis, University of Edinburgh.

Mourelatos, A. (1978). Events, processes and states. *Linguistics and Philosophy 2*, 415–434.

Mourelatos, A. P. D. (1981). Events, processes, and states. In P. Tedeshi and A. Zaenen (Eds.), *Tense and Aspect*, pp. 191–212. New York: Academic Press.

Partee, B. H. (1984). Nominal and temporal anaphora. *Linguistics and Philosophy 7*, 243–286.

Paslawska, A. and A. von Stechow (2003). Perfect readings in Russian. In A. Alexiadou, M. Rathert, and A. von Stechow (Eds.), *Perfect explorations*, pp. 307–362. Berlin: Mouton de Gruyter.

Reyle, U., A. Rossdeutscher, and H. Kamp (2007). Ups and down in the theory of temporal reference. *Linguistics and Philosophy 30*, 565–635.

Rijksbaron, A. (2002). *The Syntax and Semantics of the Verb in Classical Greek*. Amsterdam: J. C. Gieben.