

Brentano's Apple

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1. Introduction

The distinction between telic and atelic events is a fundamental one in the theory of events. Atelic events are events that have no intrinsically defined beginning or end. Telic events on the other hand work towards a goal that is reached at the end of the event. There is an idea around that atelic events behave like mass nouns while telic events are like count nouns. This idea originated with Bach ([1]) and Krifka ([6, 7]).

¹ One of the properties of atelic events is that of divisibility (or divisiveness). For example, *run* denotes atelic events. That means that if John is running between 2pm and 3pm there is an event of his running between 2pm and 2:30pm as well as one of his running between 2:15pm and 2:45pm. By consequence, rather than just one event of John's running we have infinitely many. This is quite similar to Brentano's claim that when we have an apple we also have infinitely many half-apples ([2], P. 50). I shall henceforth dub this thesis the "events-as-stuff" view and contrast it with the "events-as-individuals" view, which holds that events are individuals, be they telic or not. It is the latter thesis which I hold to be correct. The events-as-individuals view says that events are *always* individuals, no matter whether they are telic or not; the first view however draws a line between telic events, which are individuals, and atelic events, which are not.

I shall raise a number of concerns against the "events-as-stuff" thesis, partly new, partly old. I am less concerned with the problems that arise from taking divisibility to the extreme (see [3] for such arguments). As we know from physics, nothing is divisible indefinitely. Thus, events cannot be broken down into parts indefinitely. Yet, this also applies to things, so these problems typically apply to the definition of mass nouns as well. Hence, the parallel between atelic events and mass nouns is not

¹ Bach actually calls the atelic events processes, a terminology that I actually prefer but do not use in order to make this account intelligible to others. Also, when I say that certain events are telic or atelic I rather mean to say that the event property is telic or atelic. This is because one and the same event can be telic under one ascription and atelic under another. The formalisation below will implement this though in writing I find that it is too cumbersome to always make this distinction.

undermined by arguments from their physical properties. They do not seem to me to touch the analogy of atelic events with mass nouns, which is my central concern here. My principal complaint is namely that we expect events to be individuated, be they telic or atelic. We want to refer to events of running, for example, but cannot do so if such events form a mass. Mass nouns on the other hand are not individuated. Thus the analogy fails. It so turns out, however, that there is another class of count (not mass) nouns that is more similar to events than mass nouns. These are nouns referring to internally unstructured entities such as ‘meadow’. On the one hand they are clearly individuated, on the other hand they are divisible in the same way as events are. On the empirical side the events-as-stuff view also makes wrong claims about the truth conditions for a number of sentences.

Taken together the evidence suggests that we should not think of atelic events as being divisible or cumulative. However, if the basic intuition has appealed to so many people including myself it is maybe worth elucidating in what ways the formulation of these principles is misleading and could be improved. This is what I shall undertake among other things in this paper.

I offer this paper as a token of gratitude to Peter Staudacher, one of the few true intellectuals I know. He has at the same time been an unfailing critic and a staunch supporter. We need such spirits more than ever.

2. Event Semantics

Event semantics analyses nonnegative sentences as existentials. “John listened to the radio.” is true on this view if there is (!) an event e with temporal trace preceding “now” which is an event where John listening to the radio. A translation without events would be as follows: there is an interval I ending before “now” such that during I John listens to the radio. Talk of events therefore replaces talk of intervals, though only indirectly. The interval in question can be seen as the temporal trace of the event that it supports. The use of the present tense in the ascription of truth conditions is crucial: the event e must exist in the model and so does the interval I . From outside, existence is timeless; from inside, however, it is considered relative to the time of utterance, simply called “now”.

One of the purported benefits of event semantics is that it can explain the validity of inferences such as the following

$$\frac{\text{John is singing in the bathtub.}}{\therefore \text{John is singing.}} \quad (1)$$

This comes out as logically true if we treat the modifier as an added conjunct under

the scope of the existential. (Here, Act and Loc the actor and location of e .)

$$\frac{(\exists e)(\text{sing}(e) \wedge \text{Act}(e) = j \wedge \text{Loc}(e) \subseteq b)}{\therefore (\exists e)(\text{sing}(e) \wedge \text{Act}(e, j))} \quad (2)$$

Let us briefly look at temporal modification. "Yesterday, John sang in the bathroom." might be rendered as follows, where $\tau(e)$ denotes the time interval of e .

$$(\exists e)(\text{sing}(e) \wedge \text{Act}(e) = j \wedge \text{Loc}(e) \subseteq b \wedge \tau(e) \subseteq \text{day-before(now)}) \quad (3)$$

This makes explicit reference to some interval, as we need to be specific about when the event took place. By analogy, it would be appropriate to think of present tense as providing a clause of the form " $\tau(e) \supseteq \text{now}$ ".²

In what is to follow we need to distinguish between a sentence holding at a given interval and the existence of some event with that interval as its trace. If it is (uninterruptedly) true between 11:00 and 11:05 that John runs this does not necessarily mean that the following sentence is true at 11:10.

$$\text{John ran between 11:00 and 11:05.} \quad (4)$$

On the other hand, the following seems to be true.

$$\text{John was running between 11:00 and 11:05.} \quad (5)$$

The difference is that (5) claims the truth of a property ("running") for the interval [11:00, 11:05], while (4) claims that the trace of the interval e is contained in [11:00, 11:05]. Not everyone may accept the intuition, and it is not even crucial for the argument I am making here. What is important, though, is to realise that there is a distinction between the temporal trace of an event, that is, the set of all time points at which the event holds, and the event holding or going on at a certain interval. An event can be going on at an interval that is smaller than its temporal trace.

I assume a few primitive properties and operations on events. I write $e < e'$ if e is a *subevent* of e' . I shall not say much about the precise nature of this relation. It will turn out, though, that we only really need to talk about temporal inclusion. If $e < e'$ then $\tau(e) \subset \tau(e')$. The converse does not hold. Given two events e and e' , I denote by $e \sqcup e'$ the *sum* or least upper bound (wrt $<$) of the two events. (I prefer to write \sqcup since \oplus for me has connotations of disjointness.) Like [8] I do not think that the sum necessarily exists, but that is not essential. We have $\tau(e \sqcup e') = \tau(e) \cup \tau(e')$. A property \mathcal{P} of events is *cumulative* if $\mathcal{P}(e)$ and $\mathcal{P}(e')$ implies $\mathcal{P}(e \sqcup e')$.

² While here I write " $\tau(e) \supseteq \text{now}$ ", above I have used the converse inclusion. This just reflects my intuition of what should serve as a proper translation. How one arrives at these translations is not a matter of this article.

Divisibility. \mathcal{P} is *divisible* if whenever $\mathcal{P}(e)$ and $I \subseteq \tau(e)$ there is an event e' such that $e' < e$, $\tau(e') = I$ and $\mathcal{P}(e')$.

This says that whenever we have an event, say an event of John's running and we select a subinterval I of $\tau(e)$ then there is an event e' of John's running that has trace I .

Cumulativity. \mathcal{P} is *cumulative* if whenever $\mathcal{P}(e)$ and $\mathcal{P}(e')$ then $e \sqcup e'$ exists and $\mathcal{P}(e' \sqcup e)$.

I shall not say much about cumulativity in the sequel. Suffice it to remark that there are essentially two kinds of cumulativity. The weaker version says that $e' \sqcup e$ exists only if $\tau(e') \cap \tau(e) \neq \emptyset$, or, more precisely, if $\tau(e') \cup \tau(e)$ is an interval. The stronger version is the one given above.

Notice that verbs do not denote events but rather properties of events. This means that we should actually not talk of an atelic event but rather of an atelic event description (see Footnote 1). For telic events may have proper parts, though these parts cannot fall under the same description. Yet, I will not always be consistent in talking about event descriptions but rather follow the general usage here and talk of events simpliciter. I take it that certain verbs are atelic and others telic. It may turn out that even if a verb is atelic the full VP denotes a property of events that is telic, but this does not touch on the question of what that atelicity means in this connection.

Atelicity.

An atelic verb denotes a property of events that is divisible and cumulative.

Crucially, the following must also be assumed.

Temporal Visibility.

For every event e , $\tau(e)$ has nonempty interior.

This means that $\tau(e)$ contains at least some open interval $]t_0, t_1[$ with $t_0 < t_1$. It follows that if e is a divisible event e has proper subevents. For if $\tau(e)$ has a nonempty interior, the interior contains a point t' (pick $(t_1 - t_0)/2$) and we can take I to be the set of points of $\tau(e')$ less than or equal to t' . This is a proper subpart of $\tau(e)$. Now if $\mathcal{P}(e)$ where \mathcal{P} is divisible then there is an e' such that $\mathcal{P}(e')$, $e' < e$ and $\tau(e') = I$.

That there is a part structure on atelic events that is inherited from the temporal structure of intervals has a parallel in mass nouns. The idea of noun denotations is this. Objects form a partially ordered set $\langle M, < \rangle$. Moreover, there is an operation \sqcup of least upper bound on objects. The denotation of mass nouns is an atomless

mereology, that is, a structure $\langle M, < \rangle$ which is an atomless boolean lattice with the zero removed. Being atomless means that there are no minimal elements in M . Alternatively, it says that for every $x \in M$ there is a $y \in M$ such that $y < x$. For any two objects x and y we have a sum object $x \sqcup y$ and a meet object $x \sqcap y$ (unless the two are disjoint, for we have no bottom element). To complete the analogy we now “measure out” our event in terms of objects. For example, if John is drinking, we can measure out the event of his drinking in terms of what liquid is consumed (and not just: how much of it). If he drinks three bottles of beer, say b_1, b_2 and b_3 then the interval of his drinking all three is the sum of intervals of his drinking each of them. Let e_1 be the interval of John's drinking b_1, e_2 (e_3) the interval of his drinking b_2 (b_3). Then $f_{12} := e_1 \sqcup e_2, f_{13} := e_1 \sqcup e_3,$ and $f_{23} := e_2 \sqcup e_3$ are the events of his drinking two bottles. Notice that the f_{12}, f_{13}, f_{23} are not pairwise disjoint. And $f_{123} := e_1 \sqcup e_2 \sqcup e_3$ is now the entire event. Mapping the events to the bottles consumed provides a map from events to objects (the incremental theme). This map, denote it by λ , is reversible. The liquid consumed defines an event (uniquely, as we assume that John does not stop drinking). This in fact allows to define operations \sqcup and \sqcap on the events such that

$$\lambda(e \sqcap e') = \lambda(e) \sqcap \lambda(e'), \lambda(e \sqcup e') = \lambda(e) \sqcup \lambda(e') \quad (6)$$

Events are measured in various ways. One way is time. The function τ is a map from event structure into the set of sets of time points. (Again I note in passing that all this makes sense only for events of similar nature and which are somehow subevents of some event that needs to exist in the first place. For I can buy the same book from A once A has bought the book from B. The events of buying, call them e and e' have the same theme. Thus the parts of $e \sqcup e'$ could not be measured out in terms of “book matter bought”.)

This story about boolean maps conflicts with the idea that events are individuals. I will argue below why that is so. Here I shall just state that it runs counter to another axiom.

Continuity.

For every event $e, \tau(e)$ is an interval.

If that is so then from the three events e_1, e_2, e_3 of drinking bottle b_1, b_2 and b_3 , respectively, only two of the following sums can be successfully formed: $e_1 \sqcup e_2$ and $e_2 \sqcup e_3$ (on condition that e_1 precedes e_2 and e_2 precedes e_3). I remark also that John may have drunk some bottle of beer without there being an event of his drinking that bottle. This is so since the principle of continuity requires this event to go on for an interval. So if John interrupts his drinking there is no event of his drinking

that bottle. There are only events of his drinking some portions of the beer from that bottle.

3. Three Problems

One argument in favour of events in the first place is the ability to refer to them in discourse.

John played the piano yesterday. It was fantastic. (7)

“It” refers to his playing, an event. For this to be successful we need to be able to individuate the event of his playing the piano yesterday. The event is however atelic. In order for the reference to be successful we need to know which one to pick. Moreover, as was observed in relation to donkey sentences, pronouns often carry a uniqueness presupposition (see [4] on donkey anaphora and uniqueness). In the present circumstances it seems to me that “it” does carry such a presupposition. Thus, (7) is successful only if John played only once.

Also, consider the following sentence.

John sang twice yesterday. (8)

If counting can make any sense at all we must assume that events can be uniquely individuated. Proposals to this effect have been made. Essentially, they boil down to this. The events referred to in (8) are all the maximal events with respect to < that are singing events of John. Notice that there can in fact be several such events. Consider John giving a concert in the morning and one in the evening. Then the next day there have been two piano recitals and the discourse (7) is infelicitous since the pronoun does not refer uniquely. If hearer knows there have been two concerts s/he will probably intervene at this point asking for clarification. (8) will be true if John gave two recitals. Whether or not it is also true if he gave more is a separate question, though it also hinges on a maximality question.

A proponent of the “events-as-stuff” thesis will reply to this example that the reification of events as maximal satisfiers of the condition is done on need. Thus, basically, an atelic verb denotes some set of events that is divisible and cumulative, but when it comes to counting them, only maximal coherent events count. The event stuff is suddenly turned into event objects.

However, I still find this unconvincing. It so turns out that while it never hurts to assume events to be individuated in the first place, there are plenty of examples where the semantic analysis cannot work otherwise. Consider the situation in which

John was walking up to the house. Now consider the sentence

John went towards the house. (9)

Unless we individuate the events this sentence will come out true in this situation. For then there is an event e at the beginning of which John was at some distance from the house and at the end of which John is actually at the house. Now take some proper initial part e' of e . Then e' is an event that makes (9) true. That seems contrary to fact. I think that (9) is simply false. I can think of two possible replies. The first consists in acknowledging this and individuating the events in the sentence above. This individuation must then be triggered by the present circumstance. The second is to deny that the sentence is false and instead consider it infelicitous.

The first option would run as follows. On the events-as-stuff reading, (9) is true but vacuously so. Speaker however is cooperating, hence s/he meant something else. Let us therefore individuate the event and proceed. One question behind this explanation is why it is that the sentence is saved through individuation and not something else (say, I might think of another maxim to save it). Another is that if the sentence is to tell me anything at all we need to individuate the event by default (which is effectively what I claim happens). For the difficulty in the argument is that hearer is never sure when the case arises that s/he should individuate the events. Without individuation, (9) says that John simply went towards or up to the house. What is factually the case is not known, but the sentence manages to be informative nevertheless. With individuation, however, the sentence assumes the reading that John went towards (but not up to the house). It is thus difficult to say what triggers individuation.

However, given that (9) means John went towards but not up to the house, how do we get that meaning without individuating the events? The idea is to use a scalar implicature. There is a Horn scale ⟨towards, up to⟩, so that when you use “towards” I take you to implicate that (10) is false for otherwise you would have said (10).

John went up to the house. (10)

The next example however clearly brings the point home. There is no way to consider this true if John actually went up to the house.

John went towards but not up to the house. (11)

Additionally, this sentence has all the ingredients of an atelic sentence. Any part of his going towards but not up the house is again some such.

4. Divisibility

We have seen that an account of atelicity in terms of divisibility contradicts our intuition that wants such events to be individuals, hence countable like marbles on a floor. Nevertheless, many people accept the *prima facie* intuition of divisibility. What has gone wrong? In my view there is a confusion between the actual and the potential. It confuses events that *might* exist with those that do. How come we are confusing them? Here is a scenario. Suppose you show me a film of two armies fighting for half an hour. I will surely say when you ask me that there is a battle. I will say this even when the actual battle lasted for sixteen hours, independently of whether I know that or not. If however for some reason the battle really stopped after this half hour, there also has been a battle. Thus, the battle could stop any minute after the film and still be said to be a battle. Could be. But does that mean that there *is* a battle of half an hour? I think not. To test this, ask me (or whoever saw the film) whether I (or that person) *saw* the battle. If I know it lasted sixteen hours I will only say that I saw a part of it. The less I see of it, the less I am inclined to say that I “saw it”. If on the other hand I do not know for how long it lasted then my answer will depend on what I conclude from the film. If it looks like continuing for longer I might be reluctant to confirm that I saw it. But questions like this are somewhat beside the point. In model theoretic semantics asking about the acceptance of sentences makes sense only if all the relevant information about the model is known. Otherwise either our semantic translations are substantially flawed since they do not themselves depend on anyone’s knowledge when they should, or else you are asking for the impossible. Namely, suppose you decide to translate the sentence “There has been exactly one battle on that day.” by some formula φ . This formula should be true independently of what I know to be the case. Therefore, the fact that my answer depends on what I know to be the case does not reflect anything about the material content of the translation; it only reflects the fact that I do not know enough to say whether the sentence is true. Therefore, reliable information may only result if you give me all the information that the translation φ rests upon. Though this may be hard to do, in the present circumstances it seems clear that whether or not I accept questions about battles occurring or not occurring you need to exhaustively show me the events. In model theoretic terms, you need to show me the model.³

Often we give answers to which our knowledge gives insufficient support. In this respect (11) is relevant. If I want to answer it I must clearly ask myself whether I

³ That some relevant part of it is enough is clear. However, in order to be able to answer what is relevant or enough we need to look at φ . Thus, I shall for simplicity say that one needs to have the full model.

saw all relevant parts of the story. Likewise if I say "John did not finish the race." it is blatantly clear to me that I should have witnessed enough of the entire race to be certain about my answer. Suppose namely that I have been absent from substantial parts of the race, or even entirely. Then I might still accept or say "John ran the race.". But in so doing I merely make some assumptions about the world. I assume some principle of continuity or inertia for I simply believe to have seen enough to support my claim. Only if I am pressed hard enough on the evidence will I give in to the thought that I don't know for sure.

So now what about the half hour battle? I say the following. Take a fighting that lasted in fact sixteen hours. Now I can still assume that only that half hour of fighting was going on, that is, I can picture a world or a situation where people were fighting only for this half hour, and for the rest of the time where drinking tea. Then *that* fighting is a battle. But does it actually exist? Obviously not. Similarly, I have to disagree with Brentano who says that the half apple exists in your hand even when what you have in your hand is an entire apple. (See [2], Page 50, where Brentano discusses the existence of the halves of the apple.) The half apple *could* exist, but as a matter of fact it does not. Only when you cut the apple suddenly two halves come into existence; but then the apple is gone. What I concede is that the apple matter constituting that half or the other does exist in all these cases, independently of whether the apple is whole. The object "half an apple in your hand", however, does not until you cut the apple in half.

I have used the word "battle", which is in fact an event denoting noun. I argue that the very same applies to ordinary sentences like (12).

John sang. (12)

In terms of events this says that there is an event of singing and it is going on now. There is however just one event that makes this sentence true, and it lives on the maximal stretch where John is singing. Hence we have no trouble understanding what makes (13) true.

John sang twice yesterday. (13)

Also, when we hear John sing we have no difficulty knowing that "John sings." is true even when we do not know for how long his singing will last. For we do know that whenever he decides to stop the event of his singing that we are now witnessing is one that makes (14) true.

$(\exists e)(\text{sing}(e) \wedge \text{Act}(e, j))$ (14)

What emerges from the preceding discussion is that not only are events not divisible: there is a stronger claim here, and it is this. Suppose we have an atelic event description \mathcal{P} . If the events e and e' satisfy \mathcal{P} then $e \sqcup e'$ does not exist or is not \mathcal{P} (see

below on the problem of existence). However, any event that would look like $e \sqcup e'$ internally exists in some possible world and has \mathcal{P} there. Also, if $e' < e$ and $\mathcal{P}(e)$ then e' does not exist. In other words, I subscribe to the following two doctrines for cumulative and divisible events.

$$\Box(\forall e)(\mathcal{P}(e) \rightarrow \neg(\exists e')(e < e' \wedge \mathcal{P}(e'))) \wedge \Diamond(\exists e')(e < e' \wedge \mathcal{P}(e')) \quad (15)$$

$$\Box(\forall e)(\mathcal{P}(e) \rightarrow \neg(\exists e')(e' < e \wedge \mathcal{P}(e'))) \wedge \Diamond(\exists e')(e' < e \wedge \mathcal{P}(e')) \quad (16)$$

As it happens I am less confident about the possibility of events that contain e (or are contained in e) but crucially what I am concerned here with is their *nonactuality* as events of type \mathcal{P} in any world where e has \mathcal{P} .⁴

5. Apples again

What I have said about atelic events suggests that rather than being mass nouns they are like count nouns and that the suggested parallel between the nominal and the verbal domain is an illusion. Events are individuated, and hence countable, the denotata of mass nouns. Stuff, however, is not individuated, end of story. I disagree. What is wrong, in my view, is not the idea of a parallelism but the idea of a parallelism between atelic events and mass nouns. It is only the latter idea that should be discarded. Instead, there is another class of nouns that in my view happens to be quite similar to atelic events. They come with a determiner and yet they show divisibility effects. An example that is not an event nominal is ‘meadow’. It refers to an object, an extended piece of grass. It is different from the substance of which it is made, namely grass. You have to use it with a determiner; it is incorrect to say “I saw meadow.”, you have to say “I saw a/the meadow.”; by contrast, it is correct to say “I saw grass.” but incorrect to say “I saw a grass.”.⁵ What makes grass a meadow is the fact that

⁴ There is an alternative avenue to model this formally. It is to assume that there exist processes in addition to events, so in place of the formulae we should talk about the nonexistence of certain events. In this case, everything is a process, processes also have parts where events do not. Processes are thus the “event stuff”. Additionally we have a predicate \mathcal{E} . $\mathcal{E}(p)$ means that p is an event. In that case the formulae need to be replaced by the following.

$$\begin{aligned} (\forall p)(\mathcal{P}(p) \wedge \mathcal{E}(p) \rightarrow \neg(\forall p')(p < p' \wedge \mathcal{P}(p') \rightarrow \neg\mathcal{E}(p))) \\ (\forall p)(\mathcal{P}(p) \wedge \mathcal{E}(p) \rightarrow \neg(\forall p')(p' < p \wedge \mathcal{P}(p') \rightarrow \neg\mathcal{E}(p))) \end{aligned}$$

On the formulation here we need to define cross-world comparison, that is, we need to be able to say when $e < e'$ or the like hold.

⁵ The correctness of “I saw the grass.” must be accounted for in terms of discourse and is of no interest here.

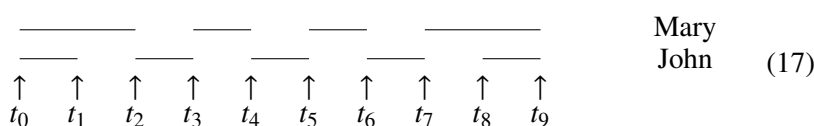
the grass is confined to an area. If there is grass at a point P there is a maximally connected region r containing P such that it is entirely covered by grass. r is the region of the meadow. Thus what substance a thing is made of can be determined on condition of its boundedness. It is interesting to observe how Kant solves what he calls the paradoxes of transcendental reason (see [5]). He argues for example that the universe is infinite and that the universe finite. He then discusses the arguments, finds both compelling and concludes that what has gone wrong is that they suppose that the universe is an object. A similar paradox concerns the collection of all sets.

So, when you hear John making singing noises there is an event of his singing just in case his making noises has a beginning and an end, which is normally guaranteed to be the case. It is therefore misleading to speak of atelic events as having no natural endpoints. They have clearly defined endpoints. Following Kant I shall say that they need these endpoints in order to become objects, that is, events.

6. Constitution

The biggest problem that besets the theory of events is that of individuation. In his penetrating study, [8], Lombard develops a theory of events and, more relevant for us, of what he calls atomic events. Roughly, he thinks that events are made out of atomic events; atomic events have a single subject only. Atomic events have the canonical form $[x, \varphi, t]$, where x is an object, φ a change description and t a time interval. This notation is short for “ x is φ ing throughout t ”.

Anything happening to a group of subjects is thus a group of events without being an event in itself. This creates interesting problems of decomposition. Suppose that John is singing a duet with Mary. Assume that it is composed (and performed) as in the following schematic drawing.



This means the following. First the two of them are singing together between t_0 and t_1 , and then Mary and John are singing alternately between t_1 and t_2 (Mary), t_2 and t_3 (John), up to t_8 , and finally both of them are again singing at the same time between t_8 and t_9 . As a duet it lasts from t_0 to t_9 . As a singing of John it is a sequence of five events (from t_0 to t_1 , from t_2 to t_3 , t_4 to t_5 , t_6 to t_7 and t_8 to t_9). As a singing of Mary it is a sequence of four events (from t_0 to t_2 , t_3 to t_4 , t_5 to t_6 , and from t_7 to t_9). Thus the

question is again whether we have one or several events. Lombard is concerned with the question of metaphysics. The decomposition into events is driven for him by a physical theory, which tells us, among other things, what the part structure of things is. It is however somewhat dissatisfying for a semanticist if the meaning of a sentence were to depend on the nature of a physical theory. Can, for example, the falling of a drop be considered as a single event? If you think that this is a single object the answer is ‘yes’; if you do not think that the answer is ‘no’. But then reference to such an event could not be possible in the way we need.⁶ I take it, therefore, that groups can be the subjects of events. This creates a problem for me, one that Lombard’s theory seemingly avoids: John’s singing between t_2 and t_3 alone, and his singing as part of the duet—are they one or two events? On the face of it this looks as if we now have two. For on the physical side of matters when Mary is also singing we cannot distinguish whether John’s singing is his singing by himself or his singing with Mary. However, Lombard is no better off here. For in his view events are divisible. So, he takes it that there is an event of Mary’s singing between t_0 and t_1 . By contrast, I hold that such an event does not even exist. There only is Mary’s singing from t_0 to t_2 . If we were to admit groups as subjects then Lombard would allow a singing of the duet between t_2 and t_3 while again I deny the existence of this event. In my view, when we consider a singing of John *and* Mary there is only the event from t_0 and t_9 . In addition, however, there is an event of John’s solo singing between t_2 and t_3 . Thus we still maintain that there is only one event at a given interval. The problem is now quite similar to the problem of individuals. John’s solo is part of John and Mary’s duet, just as my right arm is part of my body, and yet there is no multiplication in the ontology because my arm is not my body, only part of it.

Let us see in more detail what defines an event for Lombard. He takes it that an atomic event has a single subject that is itself indecomposable; furthermore, there is a property space S , which is a topological space that is dense.⁷ Let $P, P' \in S$ and $[t_0, t_1]$ be a time interval. Then we have an atomic event of x ’s changing from P to P' at $[t_0, t_1]$ if x has P at t_0 and P' at t_1 , and for no time points t', t'' in the interval there is a property $Q \in S$ such that x has Q both at t' and t'' , unless of course $t' = t''$. (In other terms, Lombard wants the map from $[t_0, t_1]$ to S giving x ’s property at a time point to be continuous and injective. If it is continuous, however, the space S

⁶ A different possibility would be to say that what the semanticist is after isn’t really events but, say, events*. That would allow Lombard’s theory to live side by side with the semantical analysis, because the semantical analysis is in terms of events* rather than events. I think this is unsatisfactory rather something of a compromise.

⁷ A topological space is **dense** if for no point x there is an open set containing just x . It seems that what Lombard really needs is *path connectedness*. This is the property that whenever $x, y \in S$ there exists a continuous function $f : [0, 1] \rightarrow S$ such that $f(0) = x$ and $f(1) = y$.

needs to be complete, for the image of a complete space under a continuous map must be complete.) For him, the event of x 's changing from P to P' can be cut into two successive events from x 's moving from P to Q and of x 's moving from Q to P' , where Q is any property had by x in the interior of the interval. In my view, these events do not exist. I require that the interval must be a *maximal* interval.

It is perhaps worthwhile to ask why it is that Lombard does not require maximality. I think the reason is that if we insist on maximality then it becomes impossible to see whether or the process under study is an event. It would not depend on its intrinsic properties but rather on extrinsic factors as well. To see whether the change of x in the state space is an injective continuous function within $[t_0, t_1]$ does not require us to look at anything but x , the interval and the properties x has in this interval. If however maximality is enforced then you do need to know about the properties x has outside of the interval. However, this is quite analogous to the example of the battle. A portion of the battle is not the battle itself, just a part. To understand whether what you have seen in a film *is* a battle you need to know that it did not begin before you started watching and that it did not end after you stopped. Of course, when you want to decide that from what you see the battle has to begin strictly after you have started watching, so you actually decide at what point it began. Otherwise you would actually be able to decide intrinsically when a battle begins. Similarly, it needs to end before you stopped watching so that you can know when it ended.

7. Conclusion

I have argued that no matter what the event description (excluding states) is, there is only one event of that description holding at that particular moment of time. Hence, a phrase such as "John's quarrelling with the boss at noon was rude." refers to just one event of John's quarrelling with his boss, which extends over the maximal allowable span of time including noon that would satisfy that description. This view somehow assumes that underlyingly there are changes in the world going on ("event stuff") from which the events are individuated ("event objects"). It is crucial to observe however that the changes alone do not constitute the events; a condition of maximality (and non repetitiveness) must be included as well. Such a description can be derived from [8], though I disagree with Lombard on two counts: first, he allows events to be divided into smaller events, and second he disallows groups as subjects of (atomic) events.

Atelicity is not a matter of divisibility into actual events, rather, it means that an event *could have ended at an earlier point than the one at which it actually ended*. The truncated event does not exist, but it is at least a possible event. So conceived

atelic events are divisible (in the original meaning of the word: “can be divided”) but they are not conglomerates: they have no actual parts of the same kind, like Brentano’s apple has no halves. Though there could be apple halves if we decide to cut the apple. The price of that operation is the apple itself.

References

- [1] Emmon Bach. The Algebra of Events. *Linguistics and Philosophy*, 9:5–16, 1986.
- [2] Franz Brentano. *Kategorienlehre*. Felix Meiner Verlag, Hamburg, 1933.
- [3] Regine Eckhardt. Event Semantics. In Fritz Hamm and Thomas Ede Zimmermann, editors, *Semantics*, Linguistische Berichte, pages 91–127. Helmut Buske Verlag, 2002.
- [4] Makoto Kanazawa. Singular Donkey Pronouns Are Semantically Singular. *Linguistics and Philosophy*, 24:383–403, 2001.
- [5] Immanuel Kant. *Kritik der reinen Vernunft*. Suhrkamp, Frankfurt, 1974.
- [6] Manfred Krifka. *Nominalreferenz und Zeitkonstitution. Zur Semantik von Massentermen*. PhD thesis, Universität München, 1986. Published 1989, Fink Verlag, München.
- [7] Manfred Krifka. Thematic Relations as Links between Nominal Reference and Temporal Constitution. In Ivan A. Sag and Anna Szabolcsi, editors, *Lexical Matters*, pages 29–53. Stanford University Press, Stanford, 1992.
- [8] Lawrence Brian Lombard. *Events. A Metaphysical Study*. Routledge and Kegan Paul, London, 1986.