1. Temporal Experiences?

We think we perceive worldly objects (cows, chairs, fire-trucks) and some of their properties (colour, shape, the spatial relations between objects, as well as their parts). We don’t perceive all of their properties, of course: seeing a cow in a pasture usually provides little information about its birthday or DNA. One difficult question is how to draw the line between those properties that are strictly speaking perceptually accessible and those that aren’t? This paper focuses on one specific sort of property: are temporal properties and relations perceptible — in the same way, that is, as shapes, colours, and spatial relations?

Examples like the following apparently support a positive answer:

- **Change/motion:** we perceive objects change properties over time, including changes in spatial location, as when one sees a cockatoo fly through one’s visual field.

- **Succession:** we perceive different events succeeding one another, as when one hears the successive notes in a melody.

- **Duration:** we perceive the length of some intervals, as when one hears the duration of a single tone.

1. “Strictly speaking” because it’s often possible to infer the presence of some property upon seeing another, the presence of which is correlated (more or less reliably) with the former. For a lean answer according to which we visually perceive only colours and shapes, see, e.g., McGinn (1982); for a less lean one, Siegel (2005).

2. If perceptual experiences have a representational content, the question is whether they represent temporal properties and how. If they are a-representational, the question can be phrased in terms of whether we perceive temporal properties and how they appear to us. I assume the former throughout (pace Alston 2005; Martin 2002, 2004; and Travis 2004) — though nothing really hangs on this, I think.

Taken at face value, these examples suggest, first, that we perceive not only objects but also events and processes. Second, it seems we can perceive some of the temporal relations such events and processes instantiate. Succession is a relation between at least two events, such that one event occurs earlier or later than another; duration can be thought of as the “length” of an interval separating its beginning and end; as for change and motion, they involve instantiations of different properties at different times, when the instantiation of one property succeeds another. It’s worth noting that the existence of such relations is common ground between the two contending theories of the metaphysics of time: the A-theory and the B-theory. Hence, whether we perceive such relations or not has little bearing on whether (1) events have properties such as being past, present, and future (and whether they are perceptually represented as having such properties, veridically or not), and whether (2) time passes.

In any case, the concern here isn’t what implication (if any) our experiences may have for the metaphysics of time. The question, rather, is whether we have “temporal experiences” in the first place, by which I mean: perceptual experiences of temporal relations of the sort just mentioned. The positive answer — we do perceive succession, order, and duration (in the same way we perceive colours and shapes) — is associated with a view, or family of views, sometimes referred to as the “extensional model”, sometimes as the “specious present”. I’ll call the negative answer — we don’t perceive such temporal relations — “temporal perceptual atomism” (one often hears the term “retention theory” for a similar view).

What’s particularly interesting about these answers is how both seem motivated by different conceptions of the temporal ontology of experience. For the positive answer, we can perceive temporal relations between non-simultaneous events precisely because our experiences are temporally extended in some way, either by having an extended content, representing a temporally extended portion of reality (even if the experience itself, qua mental event, isn’t extended), or in the sense that experiences themselves have a certain duration. Advocates of the negative answer insist, on the other hand, that the reason why such temporal relations aren’t really perceived is that our experiences lack any temporal extension. We’ll see shortly what grounds such differences, and what these views amount to, exactly.

Here I develop what I take to be an important difficulty for the positive answer — the mereological argument. In essence, the argument targets what advocates of the extensional model should say about the mereology of temporally extended experiences — and what, I try to argue, they cannot really say, or have no reason for saying, at least. Though the argument does in fact apply to versions of the view

4. As I understand the dispute, A-theorists claim that (1) events have so-called ‘A’-properties — such as being present, past, and future — and that (2) time is dynamic in the sense that different events become present, and then past, over time. B-theorists, in contrast, deny (1): there are only B-locations such as particular dates or temporal locations, and B-temporal relations like being simultaneous with, earlier or later than. Hence, they deny the passage of time in the sense of (2). But there’s no reason why A-theorists cannot acknowledge B-temporal relations (and locations). See, e.g., Butterfield (1984), Callender (2008), Dainton (2002), Mellor (1998, Newton-Smith (1980)).

5. Conversely, it has little bearing on whether we perceive such relations that their relata are perceptually represented or not as present (or past), pace Le Poidevin (2003a) — compare Le Poidevin (2007: 80–81). Thus, as Tye (2003: 86–87) and others (e.g., Callender 2008; Mellor, 1998: §4.3) have suggested, experiences may well represent events as occurring now (rather than as being present), where this picks out a B-relation (simultaneity) to the experience itself. Presentness doesn’t appear to be James’s (1952: 399) main concern — see Kelly (2005: 226, n. 14): he considers experiences of events at a time that is present, not whether such events are perceived as present or not. For his part, Dainton maintains that experiences have a certain phenomenological presence, not that they represent things as present (2000: 121–23; 2008: 371).

6. Terminological difficulties: the positive answer is often tagged ‘the specious present’ — presumably because James (1952) is the one theorist mostly concerned with the ‘specious present’ and his seems to be an extensional model. Recently, however, Barry Dainton (2008) has used “the specious present” for the phenomenon to be explained rather than for a particular theory, so that even the retentional model attempts to account for the “specious present”, by his lights. Since this is a merely terminological issue, and a rather confusing one, I’ll refrain from using the phrase “specious present”, which is probably just as well. Note also that not all versions of what I call ‘atomism’ are versions of the retention theory: the latter, rather, is a specific version of atomism, as I understand it.
according to which only the content of such experiences is extended, the discussion will focus on the claim that experiences themselves have duration. But first, a few words about the nature of the dispute.

2. The Dispute

Understanding what exactly is at stake between the positive and negative answers isn’t easy. Instead, I’ll limit myself to laying down what strike me as the central bones of contention between these different accounts of temporal experience.

2.1. The Relational Constraint

At the heart of the positive answer we find the idea that (i) we perceive temporal relations between non-simultaneous events and (ii) are able to do so in virtue of our experiences being extended in time — by having an extended content, or by occurring over a given interval. For instance,

The unit of composition of our perception of time is a *duration*, with a bow and a stern, as it were — a rearward- and a forward-looking end. It is only as parts of this *duration-block* that the relation of *succession* of one end to the other is perceived. We do not first feel one end and then feel the other after it, and from the perception of the succession infer an interval of time between, but we seem to feel the interval of time as a whole. [James 1952: 399]

[C]hange and persistence are directly experienced. Change and persistence both take time. How could we directly experience change and persistence unless experience itself encompasses a temporal interval? [Dainton 2000: 114]

2.2. Temporally Extended Experiences

As I understand the positive answer, it involves commitment to the following, at least:

The extensional model
(PR) Direct perceptual realism: a perceiver S can directly

7. I lack the space to develop each version of the argument in detail, but see note 39 for how the argument might apply to the view that only the contents of experiences are temporally extended.

8. Both sides can agree that simultaneity can be perceived. The issue, then, is not about perception of temporal relations *tout court*, but about temporal relations between non-simultaneous events.
perceive some temporal relation \( T \) between distinct non-simultaneous events \( x \) and \( y \).

\[(\text{te}) \text{ Temporal extension: } S \text{ can perceive } xTy \text{ in virtue of } S's \text{ experience } e \text{ being temporally extended in some way so as to represent the occurrence of } x \text{ at } t, \text{ that of } y \text{ at } t+1, \text{ and } T.\]

Note that my presentation of the dispute was so far concerned with whether temporal relations are perceived (in the same way we perceive shapes and colours, that is). This ignores one important complication: the assumption that shapes and colours are directly perceived: “[O]ur experience of change [motion, succession, etc.] is just as immediate as our experience of shape and colour” (Dainton 2000: 115). Hence, the issue isn’t just whether temporal relations are perceived at all, but whether or not they are directly (or immediately) perceived.

Inevitably with talk of “direct” or “immediate” perception, the question is: In what sense? Not, it turns out, in the now familiar “metaphysical” sense spelt out by Frank Jackson (1977; ch.1) and others (e.g., Alston 1971), according to which \( S \) perceives \( x \) (or \( F \)) directly if and only if there is no \( y \) (or \( G \)) such that \( S \) perceives \( x \) (or \( F \)) in virtue of perceiving \( y \) (or \( G \)) — where \( x \neq y \) (or \( F \neq G \)). The “in virtue of” relation may be construed in different ways, but it’s meant to express at least some sort of dependence, such that one cannot perceive \( x \) without perceiving \( y \). But then, if the relational constraint is to hold, in order to perceive temporal relation \( T \) between events \( x \) and \( y \), one must perceive \( x \) and \( y \); the former depends on the latter, and isn’t direct in this sense.

One alternative is to treat the direct/indirect distinction as a matter of what is purely perceptual or sensory in perception on the one hand, as opposed to what is more properly characterised as “cognitive” on the other. In this (contrastive and vague) sense, perception is direct if devoid of any meddling from any other type of conscious psychological state or inference; and indirect if it depends on such meddling. Thus interpreted, (\( PR \)) has it that our perceptual access to temporal relations is direct just in case it involves exclusively sensory information, independently of any other conscious source of information, including memory, belief, introspection, or any inference based thereupon.\(^9\)

A familiar example might help (see, e.g., Dretske 1995: 41-2): Céleste indirectly sees that the petrol tank of her car is empty by directly seeing the position of the indicator on the petrol gauge. It’s not just that her ability to tell that the tank is empty essentially involves her seeing the gauge and her background beliefs about its function — though that would suffice to make it indirect in this sense. There’s also a sense in which, strictly speaking, she doesn’t really see the tank’s emptiness, since she can’t see the tank, occluded as it is by other car parts. According to (\( PR \)), on this interpretation, perception of temporal relations between non-simultaneous events is akin to the sensory perception of the gauge, I take it, and unlike the more cognitive awareness that the tank is empty. It will soon become clearer why this seems to be the most appropriate rendering of “direct perception” in this context.

As for (\( TE \)), it concerns the ontology of experience and its temporal extension in particular — hence, the “extensional” model. Such extension might concern two different aspects of experience. First, as a psychological event, an experience can have “genuine temporal duration” (Dainton 2000: 115). By being itself extended in time, the suggestion goes, an experience can represent events occurring more or less within the same interval the experience occupies. Call this the “state view”:

\[(\text{ste}) \text{ State temporal extension: } S \text{ can perceive the temporal relation } T \text{ between non-simultaneous events } x \text{ and } y \text{ by having a temporally extended experience } e \text{ beginning at } t \text{ with the representation of } x \text{ and ending at } t+1 \text{ with the representation of } y.\]

\(^9\) A little more precisely (as a first pass): \( S \) perceives \( x \) (or \( F \)) directly, IFF there is no content \( p \) such that \( S \) perceives \( x \) (or \( F \)) by perceiving some \( y \) (or \( G \)) — where \( x \neq y \) and \( F \neq G \) — and by being aware that \( p \) via belief, memory, introspection, or inference.

\(^{10}\) Recently, (\( STE \)) has been defended by Dainton (2000, 2002, 2008), Foster
An illustration. Suppose you see a red apple fall from a tree (figure 1). According to (ste), your experience of the fall occupies more or less the same interval as the worldly event or process it’s an experience of: first, at $t_1$, it represents the apple still on the tree, then the various locations the apple occupies during its fall between $t_1$ and $t_3$, and finally, at $t_3$, the apple reaching the ground. (The horizontal arrow signifies the temporal extension of your experience, the horizontal brace delineates the portion of reality represented by this experience — its extended content — and the small vertical arrows indicate the representation of various phases of the fall by successive temporal parts of your experience. It's an idealisation that the experience and what it represents are perfectly simultaneous, ignoring the likely temporal gap between the stimulus onset and the resulting experience.)

**Call this the “content view”:**

$\text{CTE}$ Content temporal extension: $S$ can perceive a temporal relation $T$ between non-simultaneous events $x$ and $y$ by having at $t+1$ (or later) an experience representing the occurrence of $x$ at $t$, that of $y$ at $t+1$, and relation $T$. $^{12}$

What matters for (cte) is that, at $t_3$ (or a bit later), the subject has an experience of the falling apple, including in its content the various phases that make up this event at $t_1$, $t_2$, and $t_3$, and the temporal relations between them. (See figure 2. The arrows picture the representation of different events by instantaneous experiences, with their direction capturing the extent of the “backward-looking” nature of such content. Only E3 is strictly needed, on this account.)

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**11.** Typically, extended experiences are supposed to have a limited duration of about two or three seconds at most, in contrast with James’s (1952) more liberal conception of twelve seconds: see, e.g., Dainton (2000: 113, 169–72; 2008: 367–68), Le Poidevin (2007: 80–81). At one point, Michael Tye (2003: 97–100) suggests that a total experience could extend from one state of unconsciousness to another — thus, lasting as long as a day or more. Elsewhere, he maintains that experiences with extended contents can be instantaneous (2003: 85–92).

**12.** Its advocates include Broad (1923, 1938) and Tye (2003: 85–92).
Simultaneous awareness

For any experience $E$ to represent some temporal relation $T$ between non-simultaneous events $x$ and $y$, $E$ must simultaneously represent $x$ and $y$, as well as $T$ (though $E$ need not represent them as simultaneous).\(^{13}\)

The relation between (ppc) and the principle of simultaneous awareness (psa) is somewhat unclear: do they contradict one another, as some seem to suggest?\(^{14}\) Not if they can coherently combine, as they seem to. Perhaps the resulting combination would be guilty of overkill. Still, it’s not incoherent—which is why considerations advanced in support of one assumption need not undermine the other. For instance, the reasons behind (psa) usually rest on considerations of the following sort:

If I utter the sentence

The green flash is after the red flash,

I represent the red flash as being before the green one; but my representation of the red flash is not before my representation of the green flash. In general, represented order has no obvious link with the order of representations. [Tye 2003: 90]

Even if we accepted the view … that a judgement is a complex of Ideas, we could hardly suppose that in a thought the Ideas occur successively, as the words do in a sentence; it seems reasonable to say that unless the

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\(^{14}\) Dainton (2000: 134) writes, somewhat cautiously, that (psa) "runs counter" to (ppc). Tye (2003: 90–91) seems to argue against (ppc) by providing arguments for (psa). Perhaps, the assumption isn’t that these principles contradict one another, only that each purports to offer a complete explanation—thus rendering the other redundant.
whole complex content is grasped all together – unless the ideas ... are all simultaneously present – the thought or judgement does not exist at all. [Geach 1957: 104; quoted in Soteriou 2007: 544].

There are two points at issue, it seems: namely, that if \( x \) is represented in experience as occurring before \( y \), this need not entail that the experience of \( x \) precedes that of \( y \); and the stronger point that if an experience has the propositional content that \( x \) occurs before \( y \), there must be a time at which both \( x \) and \( y \) are represented, since it’s impossible to grasp a proposition one logical part at a time, as it were.

Even if this supports (psa),\(^{16}\) it says nothing against (ppc). Suppose you experience some event \( x \) at \( t_1 \) followed by an event \( y \) at \( t_2 \), and your experience at \( t_2 \) represents the fact that \( x \) occurs before \( y \) – a content you “grasp” at \( t_2 \). This leaves it open that you also have a temporally extended experience with one temporal part at \( t_1 \) representing \( x \) alone at \( t_1 \) and the other part at \( t_2 \) representing \( y \) alone at \( t_2 \), as well as the fact that \( x \) at \( t_1 \) is earlier than \( y \) at \( t_2 \).

Likewise with (ppc), one motivation for which might exploit the idea that perceptual experiences are transparent in the following sense:\(^{17}\)

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15. See Soteriou (2007: 546) for an attempt to defend Geach’s point.

16. Some reasons for scepticism. Regarding the first consideration, it’s one thing to say that an experience of a temporally extended event need not be extended itself, quite another to show that it in fact isn’t – especially if experiences are typically caused by what they represent, the distinct events represented are non-simultaneous, and there’s a constant temporal gap between experiences and their causes. Further, even if experiences failed to match the temporal arrangement of what they represent, they could fail in different ways, without the experience having all its parts occur simultaneously. Finally, even if both considerations are true about sentences and thoughts, why think they also apply to experiences? Why not think instead that this marks a significant difference between experiences and thoughts, as Soteriou (2007: 548) seems to suggest?


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**Temporal Experiences and Their Parts**

When we introspect, we are not aware of our experiences at all ... [W]e are aware of things outside, of changes in our bodies or ourselves, and of various qualities these items are experienced as having. Thereby we are aware that we are having such experiences themselves. But we are not aware of the token experiences themselves. So, we are not aware of our experiences as unified or as continuing through time or as succeeding one another. [Tye, 2003: 96]

Now consider a particular temporal experience:

Here a red spot is lit for 150 msecs, then 50 msecs later a second displaced green spot is lit for 150 msecs. Subjects report that they experience a red spot moving and changing color abruptly to green in midcourse toward the location of the green spot. Subjects thus experience red first, then red-switching-to-green, then green. [Tye, 2003: 90]\(^{18}\)

This case — the coloured phi-phenomenon — can be described as follows, via transparency: (1) since, at \( t_1 \), \( S \) is aware of a red spot at

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18. Tye uses this example to develop a stronger argument for (psa) — one which, if successful, would rule out (ppc). The idea seems to be that, since there is in fact no moving and chromatically changing spot, the experience of it is illusory and must be generated, not by any such event in the world, but by the rapid succession of experiences of the two spots at different locations. This means that “the subjects’ illusory experience of red-turning-to-green-in-midpath cannot occur at least until their experience of the green spot occurs’ (2003: 91). In which case, (ppc) is false: the temporal structure of experience doesn’t match that of the events it represents. But this ignores Tye’s (2003: 89–91) own contention that there is a temporal gap between worldly events and experiences thereof, thus making room for an alternative explanation: the visual system processes information about the green spot (whilst still processing information about the red one) at \( t_5 \), say, and generates, at \( t_4 \, an \) illusory experience of motion and chromatic change, followed at \( t_5 \) by an experience of the green spot alone. The explanation is sub-personal and doesn’t require that the subject consciously experience the green spot before experiencing the motion/chromatic change. For discussion of other such arguments for (psa), see Dainton (2000: 134). On apparent motion, see Palmer (1999: 471–81).
Temporal perceptual atomism

(PA) Direct perceptual anti-realism: We cannot directly perceive any temporal relation $T$ between non-simultaneous events $x$ and $y$.

(TA) Temporal atomism: Perceptual experiences aren’t temporally extended so that an experience can only represent what happens at a given time.

(PSA) is just the negation of the extensionalist’s (PR). Assuming that “direct” means the same in both, (PA) implies that if we’re aware of temporal relations, such awareness isn’t a purely sensory affair but must depend on other types of mental states. That is, it’s more like Céleste’s cognitive awareness that the tank is empty, and less like her sensory experience of the petrol gauge. Indeed, many atomists insist, the awareness of temporal relations crucially involves memory. This construal is getting something right.

Still, (PA) can be read in slightly different ways. One sort of atomist might grant that, though not purely sensory, there’s still a sense in which our awareness of temporal relations can be deemed “experiential” or “perceptual”, even if it’s indirectly so: namely, in that it involves sensory perception of the relata, and perhaps even episodic or iconic memory of previous perceptual experiences. Yet another might take the analogy with Céleste’s situation more literally and insist that we don’t perceive temporal relations directly because, strictly speaking, we don’t really perceive such relations at all — in the same sense that Céleste doesn’t really see the tank or its emptiness, or that Hume can be interpreted as arguing that we don’t perceive causal relations because all we really perceive is one event followed by the perception of another.19

The motivation for (PA) comes from the atomist conception of

19. Insofar as these different takes on (PA) rely on different notions of ‘perception’ (a narrower one restricted to the purely sensory vs a broader notion that’s not so restricted), the difference need not be all that substantive, however.
the ontology of experience (τA): contra (STE) and (CTE), neither our sensory experiences nor their contents have or represent any temporal duration, atomists contend. This needs to be qualified: in particular, whether atomists are committed to instantaneous experiences, or whether they can allow for very short experiences, somewhat extended in time by a tiny bit, enough to represent the occurrence of a single short-lived event, but not more. Both options are available, it seems. If experiences are short-lived rather than instantaneous, however, it’s important that they be short enough, so as not to represent non-simultaneous events. Otherwise, there isn’t enough of a difference between (TA) and (TE) — and the dispute threatens to collapse.

A view not unlike temporal perceptual atomism often goes under the name “retention theory”, due to its appeal to memory or retention. This raises two questions: What are retentions? and Why might perceptual atomists need them? To begin with, it’s important to keep in mind that, insofar as the focus is on “purely sensory” experiences (those meant to be direct in the relevant sense), advocates of (TA) and (TEA) insist that there are no such experiences of succession, duration, etc. In a case like the falling apple (Figure 3), what happens is that you have a succession of distinct sensory experiences, E₁, E₂, E₃, where each experience directly represents only one event, moment, or temporal part in the process:

20. Despite the suggestion that instantaneous experiences are impossible, in light of the coincidence threshold (when two stimuli occur within a short interval between 2 and 20 msecs, depending on the sensory modality, subjects can’t tell that the stimuli are non-simultaneous) and the order threshold (when two stimuli occur within an interval of approximately 30 msecs, subjects are unable to tell in what order the stimuli occurred). What such thresholds establish, at most, is that the non-simultaneity of some events, as well as the order of their succession, can be misperceived (or not represented at all). Yet this holds regardless of whether experiences of such events are temporally extended or not, and for how long. The existence of such thresholds, that is, reveals limitations on the perceptual representation of non-simultaneity and succession—but nothing about the duration of experience itself. On the coincidence and order thresholds, see Pöppel (1985) and Ruhnau (1995); for discussion of their significance for the duration of experience, Dainton (2000: 170) and Le Poidevin (2007: 79–80, 128).

21. For a brief discussion of some of the different types of memory at issue, and of Husserl’s distinction between memory and retention, see Kelly (2005: 229).


Figure 3
The question then arises: If temporal relations can’t be directly perceived, how is it that we nevertheless seem to have some sort of experiential access to them? Different atomists come up with different answers, but many appeal to memory (or “retention”) in one way or another.

At one end of the spectrum of possible atomist accounts, there is the more familiar suggestion that a subject’s experiential awareness of temporal relations involves a succession of short (or instantaneous) purely sensory experiences, with each sensory experience in the succession simultaneously accompanied by phenomenologically salient memories of previous experiences in the succession. It’s the combination — the total “experience” — with such memories of earlier sensory experiences, on this view, which makes one experientially aware of the temporal relations between worldly events.

At the other end, we find the view that all there really is, is just a succession of short-lived or instantaneous sensory experiences: the subject has a sensory experience of an event, and then another, and
another. The phenomenology of temporal awareness is to be fully explained, on this view, as a result of the successive phenomenology of single experiences enjoyed in close succession. Memory may serve merely as a basis for judgements about temporal relations, together, perhaps, with introspection and background beliefs. But there is no total “experience” of temporal relations.

Rough sketches like these can be developed further in a variety of ways, laying emphasis on different aspects, with many alternatives in-between. Concerning the role of memory, it’s possible to insist on different sorts of memory (iconic, episodic, short-term memory, etc.), and to view the relevant memories either as unextended in content — each sensory experience is accompanied by a complex of nested memories, each of which represents one different unextended past experience at most — or as representing extended segments of the succession of sensory experiences. It’s also possible to treat memory either as an essential, quasi-experiential, and phenomenologically contributing constituent of one’s total experience, or as a mere basis for judgement. In this respect, atomists might also disagree about whether the indirect awareness of temporal relations only involves sensory experiences and memories thereof, or conscious judgements too, and whether introspection may play a central role as well — to mention some of the options.

Whether atomists can really account for our apparent awareness of temporal relations and its phenomenology forms a large part of the case against atomism, with many objections exploiting in one way or another James’s slogan that a succession of experiences isn’t an experience of succession: 26

A succession of feelings, in and of itself, is not a feeling of succession. And since, to our successive feelings, a feeling of their own succession is added, that must be treated as an additional fact requiring its own special elucidation. [James 1952: 411]

Atomism, the thought usually goes, cannot account for the specific phenomenology of experiences of succession — including their phenomenal unity and continuity:

[W]e are constantly aware of phenomenal contents undergoing passage, there is a constant flow and continual renewal of content. This experienced passage is both continuous and homogeneous ... [I]f experience were packaged into discrete units, this would not be the case. [Dainton 2000: 129]

Remarks like these, however, seem more revealing of a failure to fully appreciate the resources available to atomists, and what it is they really claim, or so I suspect. In fact, both sides can agree that we seem to experience succession, duration, change and motion, pretty much in the smooth and continuous manner described by extensionalists. By any means, atomists need not deny that there’s a “constant flow” and “renewal of content” in mere successions of experiences. The real issue is what these intuitive phenomenological claims establish — and what weight, if any, they should have in settling the dispute. Not much, it seems to me. If atomists can grant that phenomenological descriptions of temporal experiences advanced by advocates of the extensional model are indeed how our successions of experiences strike us as being, the real question becomes what needs to be posited to account for

23. Some atomists, it seems, don’t even appeal to memory — see Kelly’s (2005: 227) discussion of Locke and Hume — though it’s possible they were in fact concerned with a slightly different issue.

24. Qua mental states or events, such memories may or may not be temporally extended themselves: nothing in the atomist picture of sensory experiences seems to require that memories be similarly unextended.


such phenomenology, and whether there may be a gap between the actual phenomenology of such experiences and how we naturally take it to be. In other words, the disagreement is really over what best explains the phenomenological appearances, not over the appearances themselves.

For instance, consider a succession of instantaneous sensory experiences of the sort atomists countenance. It’s possible, if atomism is true, that small gaps separate adjacent experiences in the succession—short intervals where no sensory experience occurs, so that the succession is really discontinuous. Atomists can perfectly acknowledge that it seems as though there aren’t any such gaps—the succession seems smooth and continuous. One putative explanation for this is that the gaps are simply too short to be noticed: they fall below some relevant threshold for accessibility. Another could be that episodic memories of previous experiences in the succession “mask” the gaps, as it were: a vivid episodic or iconic memory of experience $E_u$ enjoyed immediately thereafter, makes it appear as though $E_u$ lasts longer than it actually does, and “flows into” the next experience.

If anything, then, phenomenological considerations like those marshalled by extensionalists merely serve to reveal divergent attitudes towards the desiderata of phenomenological explanations. To caricature only slightly, proponents of the extensional model typically take the phenomenology at face value, so that any phenomenologically salient characteristic warrants positing some corresponding feature to explain why things seem the way they do: the metaphysics of experience can be read off its phenomenology, as it were. Hence, on this approach, the apparently smooth unity and continuity of extended experiences demands some sort of phenomenal glue (see, e.g., Dainton 2000: 84, 129). Atomists, in contrast, entertain more deflationary tastes, insisting that apparent phenomenological features can also result from cognitive, mnemonic, and introspective limitations of various sorts, for instance.\(^\text{27}\)

\(^{27}\) For a similar contrast, compare Dennett and Kinsbourne (1992).

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Faced with such error-theory, note, extensionalists aren’t really in any position to retort that our access to the phenomenology of temporal experiences isn’t filtered by memory or introspection— at least to the extent that a complete amnesiac, even if she did enjoy temporally extended experiences, would be unable to remember events perceived prior to the one she’s currently perceiving.\(^\text{28}\) Yet this opens up the possibility that memory and introspection substantially “colour” our appreciation of the phenomenology.

**3. The Mereological Argument**

If my characterisation of what’s at issue between extensionalists and atomists is along the right lines, then what’s driving the dispute has to do with significantly different conceptions of sensory experiences—of their ontology and what they can represent. If so, one would expect that questions about the mereology and content of sensory experiences—for instance, whether sensory experiences have parts, what it takes for such parts to compose whole experiences, and how combinations of those parts manage to represent temporal relations between non-simultaneous events—would occupy centre stage. It doesn’t appear to be so. The mereological argument to be developed here attempts to remedy this situation, by articulating a way in which such considerations do raise some trouble for the extensional view.\(^\text{29}\)

\(^{28}\) As Dainton (2000: 33, 37, 132) acknowledges—see also Kelly (2005: 231), and Le Poidevin (2007: 82). The point applies primarily to (ste), however: if only the content of experience is extended (cTE), an amnesiac may not be completely amnesiac, to the extent she can have information about the past, not from memory, but through experience. Though Dainton (2008: 366) notes the error-theoretic character of atomism, he pays little attention to it in developing phenomenological objections against it. Also noteworthy is that Dainton (2000: 15–16) himself seems to endorse some sort of projectivism about the phenomenology of experience.

\(^{29}\) Various other arguments have been advanced against extensionalism, including: the phenomenological Augustinian argument that temporally extended experiences cannot coherently represent events both as present and as later, or earlier, than other present events (Dainton 2000: 120–21; 2008: 369, 371; Le Poidevin 2007: 81, 87–88); the incoherence argument that temporally extended experiences cannot represent both the past and the present in the same way (Kelly 2005: 230); and the causal argument that, if perception requires a causal
The argument has two steps. The first explains why everyone in the dispute should acknowledge the existence of instantaneous or short experiences — the temporal parts of temporally extended whole experiences according to (ste). This lemma is easily derived from familiar principles for the individuation of experiences. That’s not where the real action is, though.

The second and more important step attempts to establish that whole experiences are in fact nothing over and above successions of their parts. The central point is that advocates of the extensional model simply lack any (good) reason to claim otherwise. As a result, either the extensional model remains unmotivated or the dispute altogether collapses. Here, to repeat, I develop a version of the argument specifically targeting the state view (ste).

3.1. Individuating Perceptual Experiences

We — philosophers and the folk — rely on various criteria when identifying and distinguishing perceptual experiences. For instance, it’s quite natural to individuate experiences by their representational content:

The content principle

If experience $e_1$’s representational content ≠ $e_2$’s representational content, then $e_1 \neq e_2$.

This singles out types of experiences, both across and within sensory modalities. Hearing sounds isn’t the same thing as seeing coloured shapes; nor is seeing a red car the same as seeing a blue car.

By the content principle, temporal parts of temporally extended experiences can be distinct experiences. Consider again experience $E$ of a falling apple. The temporal part of $E$ at $t_1$ (call it $e@t_1$) represents the apple at the top of the tree, whilst its temporal part at $t_2$ ($e@t_2$) represents it as between the treetop and the ground, and that at $t_3$ ($e@t_3$) represents it as reaching the ground. Since each temporal part represents the apple at a different location, they have different contents. Given the content principle, $e@t_1$, $e@t_2$, and $e@t_3$ are distinct tokens of different types.

The same verdict can be obtained through various other principles of individuation. For instance, it’s natural to expect a certain kind of independence between distinct experiences:

The modal principle

If it is possible to have experience $e_1$ without having experience $e_2$ (or vice versa), $e_1 \neq e_2$.

This serves to distinguish experience types (it’s possible to see coloured shapes without hearing sounds, and it’s possible to see a red car without a blue one), as well as tokens (successive experiences of two indiscriminable cows, Daisy and Marguerite, may be of the same type, though it’s possible to see Daisy without Marguerite, and vice versa). Thus, since any part of $E$ can in principle occur without the others, it seems, $e@t_1$, $e@t_2$, and $e@t_3$, are distinct experiences.

What does this show? Not much, admittedly: temporally extended experiences have temporal parts that are experiences in their own right, as most advocates of (ste) seem happy to admit (see, e.g., Dainton 2000: 188-9). But what if they didn’t?

3.2. Parts are Experiences

One way in which to resist the mereological argument is to tackle it upstream, so to speak, and insist that “experience stages are not experiences” (Tye 2003: 99). This may be pursued in different ways, but

30. Including: (i) the phenomenal criterion that phenomenally different experiences are of different types; (ii) the neurophysiological criterion that experiences are numerically distinct if realized by distinct neurophysiological processes, or, more generally, (iii) if they have distinct causes, both distal and proximal (the causal criterion); (iv) are had by different subjects (the subject criterion), or (v) at different times (the temporal criterion) — see, e.g., Dainton (2000: 24–25, 186). These criteria are connected in various ways.

31. Tye (2003: 98–99) — defending the one (big) experience view that a total experience extends from one period of unconsciousness to another (2003: connection with its objects, their spatial extension can impact our perceptual system, but not the temporal extension of events (Le Poidevin 2004b; 2007: 98–99).
one interesting approach draws on an analogy with material objects and their parts:

A large chunk of clay is used to make a statue at time $t$. The clay constitutes the statue without being identical with it. Suppose counterfactually that at time $t'$, where $t'$ is later than $t$, an artist cleverly removes much of the clay without remolding it so as to leave behind a small clay pot. In the counterfactual situation, the clay that remains constitutes a pot at $t'$. But in the actual situation it does not. In actual fact, no clay is removed. There is, in actual fact, no tiny pot with the statue. There is only the statue. [Tye 2003: 30]

The advocates of the one experience view can maintain that experiences are, in this way, like statues. [Tye 2003: 40]

The modal principle appears as a prime target here: even if an actual temporal part of a whole experience could have occurred in isolation as a single experience, such a part need not actually be a genuine experience.

The argument is problematic, if only for its reliance on controversial assumptions about the metaphysics of material objects. More importantly, the analogy breaks down. The main reason for thinking that there’s no actual pot in the statue at $t_1$, I presume, is that if the pot actually existed in the statue at $t_1$, it would lack whatever surface properties are necessary for performing the typical function(s) essentially associated with pots — no handle to grasp, no concave surface in which to pour water, etc. It’s this difference between the parts of clay at $t_1$ and the very same parts at $t_2$ which must support the assessment that there’s a pot at $t_2$, but not at $t_1$, I take it. This line of thought doesn’t easily extend to experiences, however.

Imagine an extended experience of a succession of notes FA-MI-REDO, and compare (a) the actual temporal part representing RE in the whole experience with (b) a possible experience of RE alone, in complete isolation from the other notes. Are there any properties, essential to (b) as an experience of RE, which (a) lacks? Not obviously — they seem to be of essentially the same kind. Perhaps there are phenomenological differences: by figuring in a whole experience of FA-MI-REDO, the actual temporal part (a) representing RE has a slightly different phenomenal character than it would have, had it been a lonely experience (b) of RE alone. Or it may have different relational properties — given its relations, temporal and other, to other temporal parts of the whole experience. Such a difference in phenomenal (or relational) properties entails, via Leibniz’s Law, that (a) and (b) are distinct. That may be, but it doesn’t show that (a) isn’t an experience whilst (b) is. For (a) still has all the properties (b) has, in virtue of which we regard (b) as an experience of a given type. How could (a)’s having additional phenomenal (or relational) properties somehow preclude it from being an experience? See ch. 4) — writes as if he’s rejecting the criteria considered in §3.1 on the ground that their application is indeterminate. But what he seems to be considering, in fact, is how to individuate extended segments of temporally extended experiences — the boundaries of which are indeterminate indeed — and not the unextended temporal parts of those segments, which can be obtained rather straightforwardly via the above criteria. Elsewhere, Tye exploits the analogy that parts of movies aren’t movies (2003: 99), though this shouldn’t carry much weight — especially if other analogies in support of the atomist view are readily available: strings of letters aren’t letters, nor are book collections books.

32. For instance, the analogy rests in part on the rejection of mereological universalism, the claim that any collection of parts — including various subparts of objects like statues and pots — can form some object, such as a pot, even if it’s embedded as a part of a bigger object like a statue, and can be a temporal part of a pot: e.g., Lewis (1986), Sider (2001), Van Cleve (2008), Varzi (2009).

33. This seems to assume that certain functions are essential to certain kinds of objects, and that conditions for the identity and persistence of objects depend on their kind (see, e.g., Koslicki 2008; Lowe 1998, 2002).

34. In the end, whether temporal parts of temporally extended experiences count as genuine experiences is a mere terminological distraction. What

Temporal Experiences and Their Parts

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3.3. Whole Experiences as Successions of their Parts
The ontological disagreement isn’t really over the existence of such
temporal parts, however. It concerns, rather, the mereology of expe-
rience and what such temporal parts compose (and how), I suggest.
Both sides can agree there are such parts (whether instantaneous or
not) and that they mereologically compose the relevant wholes, be-
they whole temporally extended experiences, as extensionalists of the
(ste) persuasion insist, or mere successions of shorter experiences, as
atomists have it (ta). It’s also uncontroversial that, qua temporal parts,
they compose, by being arranged in succession, one part after another.
Hence, if advocates of (ste) take experiences to be temporally extend-
ed, this commits them to the following:35

(1) Temporally extended whole experiences are mereologically

-prically composed by their temporal parts arranged successively.

Extensionalists also lay heavy emphasis on James’s slogan — as we
saw (§2.3) — that whole experiences of succession are distinct from
mere successions of experiences. Part of what the slogan is meant to
express, I gather, is the idea that mere successions of experiences lack
something distinctive of whole experiences of succession and, as such,
aren’t by themselves sufficient to generate the latter. Of course, every-
one can grant that some successions — such as the sum of every first
experience I enjoy every morning for a week, or the succession of my

really matters is that there are such parts. For the main argument (in Sec-
3.3) attempts to establish that temporally extended experiences are entirely
determined by successions of their temporal parts, regardless of whether
such parts are experiences or not.

35. Since (temporal) extension amounts to the having of different (temporal)
parts at different (temporal) locations. The relevant notion of temporal
part can (inter alia) be construed thus—borrowing from Sider (2001) and
Hawthorne (2006): e is a temporal part of E just in case, (i) if E occurs in S at t,
there is some conscious experience e in S at t, such that (ii) e phenomenally and
representationally overlaps perfectly with E at t (i.e., at t, E has all phenomenal
and representational properties e at t has), and (iii) e only occurs at t. So
defined, note, e needn’t be instantaneous, depending on the length of interval
t.

experiences of a passing car when each adjacent temporal parts are
separated from one another by a 1 minute gap with no experience in
between — aren’t even remotely close to resembling putative experi-
ences of succession. The issue, really, is only whether the whole ex-
periences of succession posited by extensionalists amount to no more
than the actual succession of their parts, whether just any such
succession can give way to a whole experience. In short, extensional-
ists claim, whole experiences are something over and above succes-
sions of their parts: they are irreducible to “mere successions”.

But irreducible in what sense? Different conceptions of reduction
are available. Still, many minimally entail supervenience, and super-
venience seems to earn its keep in this context. So construed, James’s
slogan would come to this: temporally extended whole experiences
fail to supervene on mere successions of shorter experiences (their
temporal parts), to the extent that distinct whole experiences may dif-
der somehow even though they share the same succession of temporal
parts, and merely replicating the succession of temporal parts com-
posing a whole experience may not suffice to replicate the whole ex-
perience itself. It’s in this respect that mere successions of experiences fall
short, I take it: a complete succession of the temporal parts of a whole
experience doesn’t necessitate — it fails to give rise to — the whole
experience composed of such parts.36 We can add this to the commit-
ments extensionalists take on board:

36. James’s slogan is often phrased as denying the identity of whole experiences
of succession with “mere” successions of experiences. Since identity entails
supervenience, a failure of supervenience means that whole experiences are
distinct from successions of their temporal parts. Conversely, it can’t be that
extensionalists merely reject identity but keep supervenience (in the way non-
reductionist physicalists often phrase their position). James’s slogan, it seems,
is typically interpreted as implying that it’s possible to have a succession of
experiences without an experience of succession. Yet if supervenience holds,
a succession necessitates what supervenes upon it, so that it’s not possible,
for the succession of temporal parts of a whole experience, to have the parts
without the whole.
(2) Temporally extended whole experiences don’t supervene on mere successions of their temporal parts.

That (2) is crucial to the dispute deserves emphasis. In particular, the ontological issue between (STE) and (TA) isn’t just whether some successions of instantaneous or short-lived experiences meretheologically compose whole experiences. To some extent, that’s a mere terminological issue: it would be no real loss for atomists — and no victory for extensionalists — if successions of experiences were treated as “experiences”. For contra premise (2), such “experiences” would supervene on successions of their parts — that’s just what these “experiences” are. And that’s precisely what extensionalists seem to deny.

Indeed, questions about the existence of extended experiences only matter, for our purposes, to the extent that they inform different answers concerning the direct (PR) or indirect (PA) perception of temporal relations between non-simultaneous events. Thus, even if some successions of experiences turned out to be whole “experiences” in some sense, no temporal relation need figure in their content. For if such “experiences” entirely supervene on successions of their temporal parts, their representational content itself must be nothing over and above the combined content of the parts, as it were, each of which represents only a single event at a time. As such, it can amount to no more than the representation of one event, followed by the representation of another, and another, and so on. In this respect, extensionalists are quite right to observe that successions of experiences aren’t experiences of succession: they do not represent successions of worldly events as such, including the temporal relations between successive events.\(^{37}\) The issue, then, is really whether (2) the wholes composed by some successions of experiences amount to something over and above such successions — as extensionalists maintain and atomists deny. Or so, I suggest, the dispute is to be properly understood.

\(^{37}\) Temporal relations between adjacent experiences, on this view, don’t somehow get to represent temporal relations between the events represented by such experiences.

But now, suppose (2) is true: if it is, and if there’s any ground for thinking it is, there had better be some feature(s) of whole extended experiences that don’t necessarily co-vary with the properties of their parts or successions thereof. Otherwise, it’s unclear how whole experiences resist reduction to successions of their temporal parts. That is, unless there’s simply no reason to accept (2), we should assume that:

(3) If whole experiences don’t supervene upon mere successions of their temporal parts, there must be some property \(F\) (or set thereof) that whole experiences instantiate but mere successions of their parts lack, the having of which doesn’t supervene on properties of these temporal parts arranged successively.

Here, I think, lies an important difficulty for extensionalism. For its advocates must find, in the whole experiences they posit, properties which remain ungrounded in successions of their temporal parts: properties, in other words, which whole experiences instantiate independently of how their temporal parts are.\(^{38}\) Yet, such ungrounded properties are difficult to come by, it turns out — or so I shall argue. It’s not that extensionalists haven’t come up with various putative candidates for \(F\) — they have! The problem is that, upon reflection, it’s far from clear such candidates do in fact fit the job description in (3). In what follows, I consider various such candidates for \(F\) — phenomenal, mereological, modal — and explain why, proceeding by elimination, they fail to meet the requirement laid down in (3). From which I conclude — on the assumption that, \(ceteris paribus\), absence of evidence provides defeasible evidence of absence — that:

(4) There is no such property \(F\).

\(^{38}\) More precisely, even if a whole experience having such a property \(F\) requires the succession of its temporal parts to be one specific way or another (after all, extensionalists might insist that successions of temporal parts and their properties supervene on the whole experiences of succession they compose), the point is only that, if (2) and (3) are true, it must be possible for the parts to be that way, even when the whole doesn’t instantiate \(F\).
And if (3) and (4) are true, then (2) must be false: there are no temporally extended experiences that don’t supervene upon mere successions of their temporal parts.

Hence, without any clear support for the sort of irreducible whole experiences that extensionalists posit, we’re left without any real motivation for the view, at best; at worst, such putative experiences of succession collapse into mere successions of their parts.

3.4. The Missing Phenomenological Difference

Usually, the sort of feature advanced in support of (2) is phenomenal. There is, extensionalists contend, some phenomenal feature or features that whole experiences instantiate but mere successions of experiences lack.

Barry Dainton (2000; 2002: ch. 7; 2008) best exemplifies this approach. To form a whole experience, he maintains (2000: 129), successive short/instantaneous experiences must be “phenomenally bound” by a relation of co-consciousness — the “glue” connecting its temporal parts into a whole experience:

[W]hile the successive phases of the ball’s motion are experienced as successive … these successive experienced phases are also parts of a single (extended) experience that is sensed as a whole… [T]he successive phases are all connected by the relationship of diachronic co-consciousness. [2008: 370]

Such a relation, Dainton claims (e.g., 2000: 84, 129, 166), can account for the phenomenology of experiences of motion, change, persistence, etc., and in particular their felt unity and smooth continuity:

The fact that we directly experience both change and continuity suggests that the contents spread over a brief interval of time can be co-conscious; the fact that our experience consists of a continuously renewed flow of content, a flow within experience itself, suggests that diachronic co-consciousness plays a key role in the generation of streams of consciousness. [Dainton 2000: 114]

About co-consciousness itself, Dainton hasn’t all that much to say, however — except for the negative characterisation that, as a relation between experiences, co-consciousness isn’t itself an experience, nor does it depend on further experiences other than those it relates, or any other sort of awareness (Dainton 2000: 40, 215–7):

Co-consciousness is a relation, but it is not a relation which has its own independent phenomenal character, and which can be observed (or introspected) in its own right, as an external connection between otherwise independent experiences. Co-consciousness connects or holds between experiences, and so in one sense is external to any one experience, but when experiences are co-conscious, they are not joined by anything external to either of them. Co-consciousness is a phenomenal feature which is neither fully ‘intrinsic’ nor fully ‘extrinsic’, as these terms are usually understood. [Dainton 2000: 217–8]

39. A word about how a similar argument targets (CTE). Two differences: (i) focus not on a whole experience’s temporal parts (the experience itself, as opposed to its content, may be unextended), but on its temporal parts (obtained from the content principle); (ii) reduction is to a (simultaneous) collection of such parts, not a succession. The claim: that (iii) an experience of a temporal relation T between non-simultaneous events x and y supervenes on the perceptual representation of x at t1 and that of y at t2, and that (iv) there’s no phenomenal feature of the whole telling against such supervenience.

Such a relation is “primitive”, “sui generis”, and “unanalysable”, he explains (2000: 105, 216–7, 236): “Co-consciousness is a basic experiential relationship, one about which there is nothing more to be said, at least while we confine ourselves to describing how things seem” (Dainton 2000: 84). Without co-consciousness, the thought
goes, successions of experiences wouldn’t seem phenomenally unified and continuous — which is why, I take it, whole experiences, being phenomenally unified by co-consciousness, are distinct from mere successions of their parts: “As already noted, a continuity of discrete awarenesses does not amount to an awareness of continuity” (Dainton, 2000: 133). But then, the relation of co-consciousness itself — and the phenomenal features it is alleged to confer (phenomenal unity and continuity) — had better not supervene on mere successions of unextended or short experiences and their properties. Otherwise, some mere successions of experiences would end up necessitating experiences of succession after all. And that’s where the difficulty lies. For co-consciousness, as a phenomenological explanation, seems idle. In particular, the phenomenal features allegedly conferred on whole experiences by co-consciousness seem perfectly explainable in terms of various properties of mere successions of experiences — and relatively easily so, it seems.

To see this, consider a particular version of temporal perceptual atomism. Roughly, on this atomist view, the apparent phenomenology of putative temporal experiences (i.e., putative experiences of motion, succession, duration, etc., but mere successions of experiences, really, according to the atomist) can be appropriately described as a function of (a) the successive combination of the phenomenal character of each

single experience in the succession, (b) the temporal relations — distance, order, succession — between such experiences, (c) the degree of overlap between the representational contents of adjacent temporal parts in the succession, together with (d) various limitations — cognitive, mnemonic, introspective. Let me explain.

To begin with, the temporal relations between adjacent experiences in a succession matter a great deal. As in a cartoon, the impression of a smooth continuous flow of experience owes in part to the fact that intervals between adjacent experiences are short enough not to be detected. Yet, if you could slow down the pace of the succession significantly by extending the intervals between successive phases, it might seem as though you undergo discrete “flashes” of experience, with nothing in between.

Important, too, is the degree of representational overlap between the contents of adjacent experiences. Back to the falling apple: each experience in the succession represents the apple at a location closely contiguous with the locations adjacent experiences ascribe to the apple. Likewise for other properties such as the apple’s shape, colour, orientation, etc: though some adjacent experiences represent some such properties in exactly the same way, there can be small gradual variations in those respects. The point is that, if differences in content between adjacent temporal parts are small and gradual enough, this is one factor contributing to the apparent phenomenal continuity of the succession of experiences: there is no apparent discontinuity, and no apparent jump, in the succession.

As for (d), it’s a function of the other three factors: (a) small differences in the phenomenal character of adjacent experiences, (b) short intervals between them, or (c) small gradual differences in their content, can fall just below various noticeability thresholds, owing, for instance, to introspective limitations, by which certain phenomenal or representational differences go unnoticed; cognitive limitations of a sort that tiny differences in perceptual content fail to trigger the subject’s discriminatory abilities; or mnemonic limitations to the effect
that phenomenal and representational differences with previous experiences aren’t registered in memory — to list some of the options.\textsuperscript{42}

The case against co-consciousness can then be laid down: even if there were relations of co-consciousness between adjacent experiences in a succession, any apparent gap or jump in the phenomenal unity and continuity of the whole would involve changes in the combination of factors (a), (b), (c), and (d). Co-consciousness adds nothing, that is, since what it’s designed to explain is already accounted for. Call this the supervenience argument against the explanatory value of co-consciousness.

To see whether the supervenience under consideration really holds, two sorts of situations are salient. First, whether differences between mere successions of experiences without phenomenal unity and continuity on the one hand, and whole experiences with phenomenal unity and continuity on the other, necessarily co-vary with significant differences in factors (a), (b), (c), and (d). Start with a succession of experiences, where the posited unifying feature (co-consciousness) is missing, so that the succession seems discontinuous, disunified, gappy, or jumpy — as extensionalists predict. What would such fragmented phenomenology consist in, exactly? Presumably, there must be noticeable gaps between adjacent experiences; such gaps, if too short, might not be noticed, in which case there’d be no reason to think the succession seems discontinuous. The succession could also seem “jumpy,” with abrupt phenomenal and representational differences between adjacent temporal parts. The point is that discontinuous-seeming successes of experiences are typically characterised via factors (a), (b), and (c). And they differ from continuous-seeming experiences in precisely those respects, thus suggesting that variations in these factors are importantly connected with the presence or absence of phenomenal unity and continuity.

Suppose now that phenomenal unity and continuity failed to tightly correlate with variations in such factors: this is the second relevant situation. It should then be possible to have a succession of experiences with very short, utterly unnoticeable gaps between adjacent temporal parts, as well as small and perfectly gradual differences between their representational contents, where the succession nevertheless seems phenomenally disunified and discontinuous, and noticeably so. Again, how can such disunity and discontinuity be described, if not in terms of noticeable differences in factors (a), (b), and (c)? Extensionalists had better provide an alternative description of what phenomenal disunity and discontinuity amount to exactly. And it won’t do to say that, since co-consciousness is lacking, so are phenomenal unity and continuity: what’s needed is a ground for the claim that unity and continuity don’t supervene on features of mere successions of experiences such as (a), (b), (c), and (d), and the assertion that they don’t isn’t one.

Worse: if supervenience failed, it should also be possible to have phenomenally unified and continuous whole experiences, even though the intervals between some of their temporal parts are noticeably long, or with significant enough differences in content between such parts (e.g., a red bicycle against a painted blue wall, immediately followed by a giant yellow dinosaur in a rain-forest).\textsuperscript{43} Experiences like these are likely to strike one as discontinuous and disunified to the extreme, it would seem. The suggestion that they could nevertheless be co-conscious contributes to the obscurity surrounding this notion: it’s not just that co-consciousness doesn’t explain anything in this second case, but that it seems to deliver the wrong result here.

All this, it seems to me, militates in favour of a rather tight connection between the phenomenological features (unity, continuity)

\textsuperscript{42} Allowing introspective and cognitive limitations to play a role isn’t to say, note, that the phenomenology of successions of experiences depends on introspection — against which, see Dainton (2000: 37–40). Rather, on this atomist view, the apparent unity and continuity of successions can be explained, not in terms of phenomenal or introspective judgments, but in part by their absence — that is, the absence of discriminatory judgments of small differences in (a), (b), or (c).

\textsuperscript{43} After all, if it’s possible for successions of experiences to lack co-consciousness (and hence, phenomenal unity and continuity) even without any noticeable gap arising out of factors (a), (b), (c), and (d), as extensionalists must maintain, why can’t there be co-consciousness despite the presence of such gaps? What would explain this asymmetry?
co-consciousness is alleged to confer and variations in factors (a), (b), (c), and (d). At this point, it would be nice to see what could support the claim that co-consciousness does make a genuine phenomenal difference, independently of the properties of mere successions of experiences. What’s needed, I take it, is some argument to the effect that neither short temporal relations between adjacent experiences nor any small degree of phenomenal and representational overlap between their respective contents, no matter how small and unnoticeable, suffice to bestow any unifying and continuous-seeming phenomenology upon adjacent experiences in a succession thereof: something is still missing, that is. Absent such argument, the claim that phenomenal unity and continuity (and the relation of co-consciousness allegedly responsible for them) fail to supervene upon variations in mere successions of experiences remains baseless. But what would such an argument look like? The following won’t help.

There is the rather familiar claim that, since there’s nothing in a mere succession of experiences to glue adjacent temporal parts together, it’s possible for such a succession to seem discontinuous.\(^4^4\) This is indeed possible, the atomist grants. Had adjacent experiences in a given succession occurred in what is in fact a different succession, with different temporal relations between them, or less overlap between their respective contents, the alternative succession might well seem discontinuous. But granting this isn’t to say that the actual succession of experiences does in fact seem discontinuous: not if the actual intervals between adjacent experiences are short enough to remain unnoticeable, and similarly for their phenomenal and representational overlap.

Another consideration—the purpose of which, I gather, is to illustrate how there is more to phenomenal unity and continuity than atomists can hope to capture\(^4^5\)—involves the idea that relations of co-consciousness affect, not just the phenomenology of successions of experiences, but that of their temporal parts as well. Dainton distinguishes two sorts of phenomenal properties: the “local” phenomenal character of an experience, which, being intrinsic (Dainton 2000: 217), isn’t determined by other experiences—or only rarely (2000: 199–206); and its “global” character, owing to the multitude of relations of co-consciousness the experience entertains with other experiences and conscious mental states (2000: 216). The latter is a relational property (2000: 219), which depends as much on co-consciousness as on the other conscious states an experience is co-conscious with (2000: 216–18).

By definition, each component of a given total experience is co-conscious with every other part. Think of the sensations located along the sole of your right foot. … [T]his

\(^{4^4}\) Relatedly, Dainton (2000: 131) suggests that there could be two sorts of thousand-year-long freezes of consciousness: (i) one where experiences before and after the freeze are linked by co-consciousness, with no apparent discontinuity as a result; and (ii) cases where experiences before and after the freeze aren’t so linked, ensuing in “a disruption in experienced phenomenal flow” where subjects “notice that something rather strange had just occurred” (ibid.). The disruption in case (ii) sounds like a noticeable temporal gap: if it is, this is a difference atomists could account for in terms of factors (a), (b), (c), and (d). If it isn’t, then, again, without some description of the relevant difference between (i) and (ii), merely asserting that co-consciousness is responsible for such a difference hardly amounts to an argument.

\(^{4^5}\) Dainton (2000: 129–30) also argues that, without co-consciousness, there’s no fact of the matter which stream of consciousness experiences in a succession belong to—e.g., they could belong to more than one. This is odd, since Dainton assumes that such experiences belong to one stream or the other anyway (if they belong to a stream, they determinately belong, no?). And even if experiences in a succession belonged to more than one stream, there’s still a fact of the matter that they belonged to such streams. Further, the question we’re concerned with is whether mere successions of experiences can ground a unified and continuous phenomenology, not whether there is a fact of the matter if experiences in a succession determinately figure in one stream of consciousness or another. The two questions seem orthogonal. Surely, even on Dainton’s view, if co-consciousness can relate experiences in a succession, there can also be experiences that aren’t so related. But then, a subject could be aware of the resulting gaps and discontinuities in her stream of consciousness (see previous footnote). Hence, presumably, the disunified succession must occur within her stream of consciousness. Otherwise, how could she have any inkling of a disunified and discontinued experience? But then, co-consciousness can’t be doing both jobs, it seems.
sensation is co-conscious with each part of your visual field, each part of your auditory field, the remainder of your bodily sensations, your current thoughts, mental images and feelings. Each part of your current total experience contributes to the global character of your current foot-sensation, and so is relevant to the latter’s identity. [Dainton 2000: 218]

From which a certain kind of holism about global phenomenal character ensues: “The global character of any experiential sub-part is determined by the global character of the total experience to which it belongs, so any variation in global character alters the global character of each sub-part” (Dainton 2000: 223).

The same goes for successions of experiences:

Although the local character of an experience is unaffected by the adjacent experience with which it is co-conscious, its global character is sensitive to the local character of the adjacent experiences. Suppose that Re had been followed by Fa rather than Mi. The global character of Re would reflect this fact: it would be of the form ‘a Re-type experience preceded by a Do-type experience and succeeded by a Fa-type experience,’ as opposed to ‘a Re-type experience preceded by a Do-type experience and succeeded by a Mi-type experience’. [Dainton, 2000: 230]

Can this help resist the supervenience argument just sketched?

Not really. For one thing, such global phenomenal characters are partly constituted by co-consciousness, and for them to fail to supervene on mere successions of experiences, it would help if co-consciousness itself didn’t so supervene. Yet, we’ve seen, there’s little reason to think it doesn’t — or so I’ve tried to argue.

For another, global phenomenal characters are quite at home in the atomist picture, it turns out. For instance, it’s no skin off an atomist’s nose to admit that, in addition to its local phenomenal character, an unextended experience might have various relational properties in virtue of its relations to other experiences and conscious mental states — including relations of temporal contiguity, simultaneity, as well as referential overlap, with adjacent experiences in the succession. Clearly, such relations are relevant for a proponent of the “cartoon” conception, as she insists that variations in such relations might affect how the phenomenology of a succession of experiences strikes the perceiver (see Section 2.3). Hence, both sides can agree that any experience in a succession will inevitably entertain a variety of relations (temporal, causal, representational) with any other experience in the succession, and that such relations may affect its phenomenology. To repeat, it’s part of the atomist’s argument that phenomenal unity and continuity (as well as the relation of co-consciousness allegedly responsible for them) supervene on features of mere successions of experiences, including the various relations between adjacent experiences in such successions. At this point, it’s becoming increasingly difficult to see where exactly the difference between atomists and extensionalists lies.

This isn’t helped by Dainton’s occasional suggestion that “[t]emporality can be taken to be another mode of co-consciousness, in that being temporally related is another way for experiences to be co-conscious” (Dainton 2000: 227). It’s here, I think, that the dispute runs the greater risk of collapsing. Atomists, we’ve seen, allow temporal relations between experiences to play a significant role, if only because temporal relations between the temporal parts of a succession of experiences are constitutive of that succession. Being then told that the crucial relation posited by extensionalists like Dainton — co-consciousness — encompasses such temporal relations threatens to erase

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46. Dainton (2000: 225) makes a similar claim about spatial relations. In general, when he attempts to spell out what co-consciousness amounts to — as when he writes, “diverse experiences can occur together, as co-conscious.” (Dainton 2000: 84) — it’s hard to resist the impression that, by co-consciousness, he simply means experiences that are enjoyed simultaneously, or with some temporal overlap.
any substantive difference between these views. And there doesn’t
seem to be much sense in arguing that without co-consciousness,
mere successions of experiences aren’t phenomenally unified, where
mere successions are constituted by temporal relations between their
temporal parts, if one also insists that some such temporal relations
are relations of co-consciousness after all.47

3.5. The Mereology of Extended Experiences
Another consideration behind the thought that whole experiences
don’t supervene on — and aren’t entirely determined by — mere suc-
cessions of their temporal parts concerns the mereology of experience.
Roughly, the assumption goes, the mereological structure of mere suc-
cessions of experiences is akin to that of mereological fusions or sums,
as described by classical mereology.48 Crucial here is the idea that, like
a sum or fusion, a succession is entirely determined by its parts, so
that any difference between any two successions owes to a difference
in their parts (conversely, identity of the parts suffices for identity of
the whole). But, extensionalists might insist, the temporally extended
whole experiences of succession that they posit have an altogether dif-
ferent sort of mereological structure, where the whole determines the
parts, not the other way around. And it’s this mereological difference,
the suggestion continues, which explains the irreducibility of whole
experiences to their parts.

One can find at least two construals of the mereology of whole
experiences as distinct from that of mere successions.49 First, there’s the
idea that whole experiences determine their parts in the sense that at
least some of the parts instantiate some distinctive properties in virtue
of figuring in different whole experiences — parts can vary in different
wholes, that is:

Strong whole-part determination
A whole experience \(E\) determines its parts \(e, e', e'', \ldots, e^*\), if
some of \(e, e', e'', \ldots, e^*\) would have been different, had they
occurred in isolation from \(E\), or in some different whole
experience \(E^*\).50

A weaker claim insists that whole experiences determine their parts
only in the sense that mere successions of the very same parts could
compose different whole experiences: wholes can vary in spite of
sharing all the same parts:

Weak whole-part determination
A whole experience \(E\) is not entirely determined by its
parts \(e, e', e'', \ldots, e^*\) if it’s possible for such parts \(e, e', e'', \ldots, e^*\),
to form different whole experiences \(E\) and \(E^*\).

Unlike the first claim, this is silent on whether whole experiences confer
different properties upon some of their parts. In fact, it cannot really allow
that, in those cases where the same parts compose different whole experi-
ences, the resulting wholes bestow different properties onto some of their

47. Perhaps those temporal relations that are instances of co-consciousness
have something special and distinctive about them. But again, without being
told what that special character might be, it’s difficult to evaluate the claim
that such relations add something to the phenomenology of successions of
experiences.

48. For classical mereology, see, e.g., Simons (1987), and Varzi (2008, 2009).

49. Here, the discussion builds partly upon Dainton’s (2000: 188–206) helpful
characterisation of different types of holism.

50. The formulation is meant to imply no more than Dainton’s (2000: 199–201)
weak impingement thesis: in some different whole experiences (not every
other type of whole, as in strong impingement), the parts have some different
property. Which properties of the parts are concerned is left relatively
open, even if some token-specific properties must be ruled out, such as the
property of belonging to whole experience \(E^*\). Otherwise, strong whole-
part determination would be trivial as a result: a temporal part \(e\) of whole
experience \(E^*\) would of course lack such a property, were it not a part of \(E^*\).
In the sort of examples typically advanced in support of such a thesis, the
properties at issue are mostly phenomenal and representational. It won’t do
to insist, however, that such properties are intrinsic, as Dainton does (ibid.).
For one thing, phenomenal and representational properties of experiences
may well fail to be intrinsic, at least on some views (e.g., Dretske 1995). For
another, given standard accounts of intrinsicness (see Weatherston 2006),
the properties a part has in virtue of figuring in a whole aren’t intrinsic, but
depend precisely on something else than the part itself.
parts. Otherwise, such whole experiences wouldn’t be composed of exactly the same parts after all: by Leibniz’s Law, their parts would be distinct, due to their different properties. The reverse is true too: the stronger thesis must deny that, in cases where different whole experiences confer different properties upon some of their parts, such wholes can still have exactly the same parts. If so, neither determination thesis entails the other.

Some have suggested that these two theses apply to different cases (Dainton 2000: 198–9), and this may help make their difference more manifest (figure 4). In case 1 (Grouping), it may seem as though the parts of an experience of whole #1 and the parts of an experience of whole #2 are qualitatively the same: experiences of any single vertical line — whether the line is located in figure #1 or #2 — seem to be of the same type and have the same content. But whole experiences of each entire figure differ in kind, as they represent qualitatively different figures. It might then seem plausible to say that, in this case, single experiences of the same type combine to form whole experiences of different types, as the weak determination thesis has it. Yet strong determination appears not to hold here: any experience of a single vertical line — in whole #1 or #2 — could exist just as it is, it seems, even in the absence of an experience of the whole.

In contrast, the Müller-Lyer example (case 2) could be taken to bring some plausibility to the strong determination thesis. Here, it might seem as though experiences of the horizontal line differ whether we look at

51. Indeed, this raises a difficulty for how the strong determination thesis is interpreted, for it can’t be that the same part (the same token experience) has different properties depending on which whole experience it occurs in, given Leibniz’s Law. Nor does it help to say that different tokens of the same experience-type have different properties when figuring in wholes of different types. What’s going on here, I think, is that different criteria of individuation give different results. A better way to put the point behind the strong thesis may be that, if an experience-part is individuated by reference to its object or cause, for instance, tokens of the same type (so individuated) could instantiate different phenomenal and representational types, depending on which whole experience they belong to.

52. What about experiences of the spaces between the vertical lines, you might legitimately ask: don’t they differ from whole #1 to #2? This suggests, not that strong determination might be true in such a case, but that weak determination only appears plausible as a result of selectively ignoring some relevant parts.

**Figure 3 or 4**: they are distinct experience-types, representing the horizontal line as longer or shorter, depending on which whole experience they figure in. Hence, it’s natural to think, the whole experience makes a difference to its parts in this case.  

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**Examples of Strong & Weak Whole-Part Determination**

**Case 1**

**Grouping**

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**Case 2**

**Müller-Lyer**

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**Figure 4**

Another illustration typically advanced in favour of strong determination goes:

Is it really true that when I hear a melody I have a *sum* of individual tones (pieces) which constitute the primary foundation of my experience? Is not perhaps the reverse true? What I really have, what I hear of each individual note, what I experience at each place in the melody is a *part* which is itself determined by the character of the whole. What is given me by the melody does not arise

53. Keep in mind that the parts and wholes we’re concerned with here are *experiences* — and not just the figures on the page. Understandably, one might feel uneasy shifting from descriptions of parts and wholes of the perceived figures to descriptions of parts and wholes of the experiences of those figures. However, the principles of individuation reviewed in Section 3.1 can help avert this concern, since they can serve in the individuation of such parts of experience: for instance, different parts of the figure are different causes, hence cause different experiences, which, by representing different parts, have different representational contents, and are thus distinct.
(through the agency of any auxiliary factor) as a secondary process from the sum of the pieces as such. Instead, what takes place in each single part already depends upon what the whole is. The flesh and blood of a tone depends from the start upon its role in the melody: a b as leading tone to c is something radically different from the b as tonic. [Wertheimer 1967/1999: 5]

Both determination theses raise a host of interesting questions. For our purposes, however, the most important is whether either can help explain how temporally extended experiences of succession aren’t just successions of their temporal parts, as advocates of (StE) maintain. The strong determination thesis is of no help, however. To see why, consider a weaker thesis in the vicinity, according to which certain parts (single experiences in a whole collection thereof) can influence other parts:

Part-part determination
In a sum of single experiences e, e', e'', ... , e*, some experience e' may affect some other experience e'', such that, had e'' not been accompanied by e', e'' would have been different.

Chromatic background effects seem to present a spatial analogue:

When seen against different backgrounds (purple on the left, bright blue on the right), the shade of khaki at the centre looks different: slightly brighter against the purple background than it looks against the bright blue background. Yet the different backgrounds responsible for this difference are proper parts of the whole figure, distinct from the whole itself, and so experiences of the backgrounds are distinct from the whole experiences.54

Once this part-part determination thesis is on the table, however, it becomes clear that examples used to support strong whole-part determination go only so far as to support a rather weak reading of that thesis, consistent with the part-part determination thesis. After all, Wertheimer’s musical example shows, at best, that experiences of earlier notes in the melody can influence an experience of the note currently played: not that a temporally extended experience of the whole melody — including temporal parts of the whole experience which haven’t as yet occurred — can somehow influence the experience of the note currently heard. Likewise with Müller-Lyer: there is no more reason to think that the whole experience somehow influences its parts (the experience of the horizontal line) than there is to think that some parts (i.e., experiences of the sidelines) influence some other part(s). The part-part determination thesis, however, is perfectly compatible with atomism. For atomists, there are only successions of experiences, but such experiences may well causally influence or determine later experiences in the succession. And if different parts in different whole successions can have such an influence, a part so determined may

54. One might object that, in the spatial case, it isn’t plausible that an experience of a part influences an experience of some other part: the two experiences are simultaneous, so the relation can’t be causal. Perhaps it’d be more accurate to say that a part of the figure (the sidelines, or the background), rather than an experience thereof, can influence the experience of some other part (experience of the horizontal line or of the central khaki rectangle), in the sense that the neurophysiological mechanisms underlying perception of the former impact on the mechanisms responsible for perception of the latter.
have different properties in different successions: strong whole-part determination is compatible with atomism too.\textsuperscript{55}

Thus, a much stronger interpretation of the strong whole-part determination thesis is needed, but it’s unclear how such a thesis could even be true (and what it might amount to), at least when it comes to temporal experiences. For how could an entire temporally extended experience of a whole melody itself determine the experience at \( t \) of a single note in the melody? Again, if some parts of the whole experience haven’t yet occurred at \( t \), how could they contribute to influencing an earlier experience: not all parts of the whole can contribute to determining the experience of the note at \( t \), it seems — only some parts do. And that’s to say nothing of how the whole itself could somehow determine a part without any of its other parts exerting any influence — especially since the whole experience hasn’t yet occurred at \( t \), and there are lots of different ways in which it might go: \textit{e.g.}, the conductor will masterfully complete the symphony, make a mess of it all, or stop abruptly ten minutes before the end.

Is the weaker whole-part determination thesis any more promising? At this point, it’s important to warn against talking interchangeably of \textit{sums}, \textit{fusions}, \textit{collections}, or \textit{successions}, of experiences. Until now, I have gone along with such talk. But that’s potentially misleading. A mereological sum or fusion is nothing but an unstructured collection of parts, you might think. Hence, there may well be more than one way in which the very same parts could be arranged — it doesn’t seem to make much of a difference to the mereological fusion of a bunch of bricks, for instance, if they are arranged to make a house or scattered at various distant points on the surface of Mars and Jupiter.\textsuperscript{56}

Thus, something like the weak whole-part determination thesis seems to apply to mereological sums or fusions, the assumption goes.\textsuperscript{57}

It’s definitely not true of successions of experiences, however, with their determine order, fixed by the manifold of temporal relations connecting the various parts of the succession. Again, had experiences in a succession been related by different temporal relations, this would have given rise to a different succession. Thus, even if the temporal parts of a succession of experiences could be re-arranged to form different whole successions,\textsuperscript{58} there’s no reason to think the very same succession of experiences could compose different wholes — without any change in the temporal relations between its parts, or in the parts themselves. The weak whole-part determination thesis is of no help, then.

3.6. Modal Differences?
A familiar strategy for distinguishing coincident entities exploits modal differences. Temporal experiences are no exception, and Michael Tye develops the strategy with an analogy:

Consider, for example, a single cloud in the sky. The cloud is an aggregate of water droplets. The ‘is’ in the last sentence is not the ‘is’ of identity. The cloud in the sky could survive the loss of a few of its constituent water droplets (if, say, a highly localized strong gust of warm air were to cause them to evaporate). Not so any aggregate of water droplets that contains them. The loss of those droplets would destroy the original aggregate. So, the cloud has a

\begin{itemize}
  \item even without being so individuated, Leibniz’s Law entails that the bricks in a house can’t really be the same as those scattered on Mars and Jupiter, since they instantiate different spatial relations.
  \item Though see Varzi (2008: 112–16; 2009: §3.2).
  \item But not different wholes made up of exactly the same parts (which is what we need), for the parts might have different temporal properties and relations, and different wholes might include different complex parts made up of different simpler ones: see the two previous footnotes.
\end{itemize}
modal property the aggregate of water droplets lacks, that of possibly surviving the loss of such-and-such droplets. It follows by Leibniz’s Law that the cloud is not identical with an aggregate of droplets. [Tye 2003: 29]

Similarly, the modal argument goes: (1) a temporally extended experience of succession could exist without some of its temporal parts, but (2) a mere succession of temporal parts couldn’t. Hence, by Leibniz’s Law, their different modal properties mean that (3) the whole experience and the succession of its temporal parts are distinct.

Again, the argument fails — for reasons by now fairly well explored, of which I present a non-exhaustive sample. First, there’s a worry that this form of argument is somewhat self-defeating. Premise (2) appears to rest on the assumption that mereological essentialism is true of mereological sums, aggregates, and fusions: sums, just like sets and their members, are to be individuated in terms of their parts, so that they have them essentially. The thought is rather natural: add or subtract a part to a sum of parts and you’ve got yourself a different sum. Indeed, no particular assumption about the nature of mereological sums or fusions is needed. Take a sum S of some parts p, q, r, … ; remove part p from S, and call the resulting sum D. By Leibniz’s Law, S and D are distinct, since S has p and D doesn’t. To get the required modal oomph, consider any possible sum D with different parts than S actually has: again, by Leibniz’s Law, S is distinct from D. This means it cannot fail, as S, to have just the parts it actually has. That’s why a sum of n water droplets wouldn’t survive the loss of one droplet, as it would be a distinct sum. And the same goes, presumably, for successions of experiences and their parts (even if successions aren’t just sums, as we have seen in Section 3.5).

The problem is that precisely the same line of reasoning applies to whole experiences and clouds. By Leibniz’s Law, a temporally extended experience would be a distinct whole experience, were it to have less temporal parts, or different ones. Ditto with clouds and their water droplets. If so, the very form of reasoning used to argue for a difference in (3) undermines premise (1): it wouldn’t be quite the same extended experience that exists without some of its actual parts.

Another difficulty concerns the argument’s validity. Presumably, for an argument exploiting Leibniz’s Law to be valid, there must be at least one property F such that x has it and y doesn’t (or vice versa): only then is it legitimate to infer, by modus tollens, that since x and y don’t have all their properties in common, they’re not identical. Yet, it’s unclear if the argument above satisfies this desideratum. The problem has to do with the sort of modal properties — de re modal properties — at play. Consider (1) and (2):

(1) The whole extended experience could have existed without some of its actual temporal parts.

(2) The succession of actual temporal parts could not have existed without some of its parts.

It seems as though the very same property is ascribed to the whole experience and denied of the mere succession. But as some have pointed out, this is a mistake.

For what modal property is it, exactly, that these events have or fail to have? It can’t just be the property of possibly existing without some part tout court: surely, both the whole experience and the succession could have existed as something or other had they fewer temporal parts. Rather, in this context, existence and survival are supposed to concern particular 60. In this case, one could say that the cloud can “survive” the loss of a water droplet, but that’s survival without numerical identity. And then, it’s not clear what ‘survival’ means exactly, and why such a notion couldn’t apply to sums or aggregates of parts just as well (it is unclear, though, how such a notion could apply to extended events and successions of temporal parts, which aren’t continuants). One might then insist that the persistence conditions for clouds are different from those for sums or aggregates. But that’s just to assume that clouds and sums of their parts are distinct kinds of things, which is precisely what the argument attempts to establish. For the suggestion that such modal arguments beg the question, see Della Rocca (1996: 190).
individual things, and are functions of the type of entities under consideration. Which is why, by the argument’s intended conclusion, these “things” are distinct. But then, it’s unclear whether proponents of this modal argument are entitled to assume that the relevant modal property is the same in (1) and (2), as the surface grammar of these premises would suggest. Instead, the property at issue in (1) ought to be that of possibly existing-as-the-very-same-whole-experience without some of its actual temporal parts, whereas that in (2) is the property of possibly existing-as-the-very-same-succession-of-experiences without some of its actual parts. If so, the argument threatens to equivocate: the modal predicate shifts its referent from (1) to (2).61

Properly disambiguated, however, all the argument has shown so far is that, whereas \( x \) (the whole experience) has some property \( F \), \( y \) (the succession) lacks some property \( G \). To succeed, the argument would have to further demonstrate, either that \( y \) lacks \( F \), or that \( x \) has \( G \). In other words, it’d need to establish either of the following:

1. The mere succession of temporal parts could not exist-as-the-same-whole-experience without some of the whole experience’s actual parts.

2’. The whole experience could exist-as-the-same-succession-of-experiences without some of the succession’s actual temporal parts.

But (2’) is precisely the sort of possibility the argument rules out in premise (2): nothing can be this sort of succession, the argument assumes. As for (1’), it seems to undermine premise (1): after all, if whole experiences could exist as the very same whole experience without some of their actual temporal parts, why not successions of the same temporal parts? Again, the reason can’t be that whole experiences and mere successions are distinct, for that’s the conclusion being aimed at. All this suggests that this sort of modal argument is far from compelling.

4. Conclusion

In order to account for the direct perception of temporal relations between non-simultaneous events, extensionalists posit temporally extended experiences of a certain sort: namely, whole experiences which don’t just supervene on the properties of mere successions of their temporal parts. I’ve argued that such whole experiences can’t really be conceded to the extensionalists, since there doesn’t seem to be any available property — including phenomenal, mereological, and modal properties — ensuring that atomist supervenience fails. If so, there isn’t much of a difference between experiences of succession and successions of experiences after all.

Perhaps the list of candidate properties considered wasn’t exhaustive enough. I can’t think of any other credible candidate for the job at hand, I must say. But if there were, the argument would be incomplete, admittedly. Even so, it could still present a serious challenge to extensionalism: at least in that any attempt to motivate the existence of temporally extended experiences of succession, which aren’t just successions of their temporal parts, and can represent temporal relations between non-simultaneous events, must come up with some specific non-supervening property, which avoids the sort of obstacles catalogued in the previous sections. Unless its advocates thoroughly undertake this task, I want to suggest, extensionalism remains unmotivated.62

61. See, e.g., Lewis (1986), Noonan (1991, 1993), Varzi (2008). One way of understanding the suggestion here is that such \textit{de re} modal predicates function like Quine’s famous “was so called because of his size”, which picks out different properties when applied to Giorgione or Barbarelli. Note, however, the suggestion need not be that all \textit{de re} modal predicates always behave in such a way. Nor is it to say that \textit{de re} modal properties are somewhat description-dependent. All that’s being suggested is that which \textit{de re} modal property a predicate picks out is determined in part, at least for some such predicates, by the subject governing the predicate. For critical responses, see, e.g., Baker (1997), Fine (2003), Johnston (1992), Koslicki (2008: ch. 3).

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