

Experiential parts

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Abstract

Several disputes about the nature of experience operate under the assumption that experiences have parts, including temporal parts. There's the widely held view, when it comes to temporal experiences, that we should follow James' exhortation that such experiences aren't mere successions of their temporal parts, but something more. And there's the question of whether it is the parts of experiences which determine whole experiences and the properties they have, or whether the determination goes instead from the whole to the parts, as holists have it. But what are parts, or temporal parts, of experiences exactly—what does it mean to say that an experience is “part” of another? Are the participants in those disputes talking about the same thing—is there a univocal notion of “experiential part” available? Are there different kinds of experiential parts? And if there are, is there a systematic way of carving them out? More importantly, how should we conceive of the temporal parts of experiences, and how can we establish that experiences really do have temporal parts, against those who reject the notion?

Professor Schnee fell: you saw their foot slip on the frozen pavement, their hips contort, arms up in a desperate attempt to regain balance. To no avail: you saw them fall backward, forcefully hitting the ground. The accident consisted of a succession of brief events, and it seems you saw them all, as they happened, one after the other. Just like the scene itself, that is, it seems your experience involved subsequent *temporal parts*.

What does it mean to say that experiences have *temporal parts*? And why does it matter if they do, or what these parts are? As I will explain (§1), it matters for several reasons—giving way to several desiderata a viable conception of the temporal parts of experience ought to meet. My aim

is to sketch a definition (§§3–4) which meets these desiderata. There may well be alternative ways of doing so. The proposal advanced here, I will argue, has the merit of escaping a number of complications rival accounts face (§§2, 6). More interestingly, I think, the proposal can be generalized to capture other notions of *experiential parts* (§5).

1 | SO WHAT?

What is a definition of the temporal parts of experience good for? Why do we need one? We do, it seems to me, both for its own sake—to clarify what talk of the “temporal parts of experience” commits us to (§1.1)—as well as in relation to different theoretical roles the notion occupies in various philosophical disputes (§1.2).

1.1 | Explanation and existence

It matters, obviously, as to *whether* experiences *do* have temporal parts in the first place and *what sorts* of things these are, what features they instantiate, and whether we really understand what we are talking about when speaking loosely of the temporal parts of experience—whether such talk can be made precise; what difficulties, if any, one encounters in doing so.¹

It is natural to segment perceptual experiences into bits along various dimensions—for example, the time of their occurrence, their intentionality or content, phenomenology, their neural underpinnings, etc.—while resorting to mereological talk. But what does it mean to say that one experience is “part” of another, that distinct experiences “mereologically compose” a “more encompassing” whole? Several familiar paraphrases are available, though mere reformulations only go so far in shedding light on the nature of the parthood relation in general. And it is unclear if there is anything like an intuitive conception of parts and wholes, let alone a *univocal* one.² More promising, perhaps, are the different models one may import in construing the mereology of experiences by analogy with that of a range of alternative paradigms: be it the temporal structure of events, the topology of spatial regions, the logical structure of propositions, or set-theoretical constructions, etc. The value of different such imports likely hinges on what aspects of experience one aims to capture, as well as on what theoretical work the resulting accounts aim to achieve.³ But which model to pick and why?

Since we are concerned with the temporal parts of experiences that are extended in time, the mereology of *events* may seem a natural starting point. One difficulty is that there is little consensus over the metaphysics of events.⁴ Further complications abound when trying to sort out the few accounts of their mereology, for another.⁵ Worse, some theorists simply deny that experi-

¹The question is only *whether* experiences *have* temporal parts: *not* whether experiences persist through time by *perduring* or *enduring*. It should be clear by now that the latter question has little to do with whether experiences have temporal parts, since even enduring continuants can have temporal parts: see, for example, Baron and Miller (2018: ch. 7), Gilmore (2006, 2008), Hawthorne (2006), Magidor (2016), Parsons (2007), Sattig (2006), and Sider (2001).

²*Pace* Fine (2010), see also Lee (2014b: 291). For different suggestions for regimenting different notions of “part,” see Cotnoir and Varzi (2021: §1.3) and references therein, Lando (2017: ch. 1), Simons (1987: 128), and Varzi (2016: §1). Wallace (2019) argues that “part” is polysemous.

³Compare Dainton (2000: 24–5, 187).

⁴See Simons (2003) and Steward (1997).

⁵Bennett (1988: ch. 10), Thomson (1977)—also Simons (1987: §2.9.1).

ences *are* events, preferring to view them as states, processes, or occurrent continuants.⁶ Indeed, a driving assumption behind suggestions like these appears to be that having temporal parts is the sole prerogative of events:

States, unlike events, do not unfold; they do not occur. I suggest, then, that states are like continuants in lacking temporal parts.

(Steward, 1997: 74)

This assumption, as Soteriou acknowledges (2013: 103), ignores that anything which exists over an interval of time—including states and continuants—*can*, on some perfectly standard definition of temporal parts, have such parts after all.⁷ This suggests that (a) whether experiences have temporal parts or not had better be kept at some distance from the question of (b) what ontological category—events, states, processes, etc. (construed in one way or another)—experiences belong to. We cannot just assume—not without first working out what exactly the notions in (a) and (b) amount to, that is—that there is a direct connection between the two.

What disputes like these reveal is the need for a definition of the “temporal parts” of experience which—as an essential desideratum thereupon—helps decide whether experiences do indeed have them, and in what sense exactly:

Desideratum #1—ontology: a definition of a “temporal part of experience” should help establish (i) whether experiences have such temporal parts and (ii) which temporal parts a given experience has.

Definitions are not just attempts to regiment theoretical terms. They carry *metaphysical import*: not only in that a definition, it is to be hoped, conveys (and is guided by) some insight(s) into the metaphysical nature of experiences and their different kinds of parts. But also in the sense that a viable definition should serve to assuage doubts about the existence of the entities so defined. Even better if a definition of the targeted notion helps resolve such ontological concerns *neutrally*, for example, without having to first decide whether experiences are events, states, processes, occurrent continuants, etc.⁸:

Desideratum #2—neutrality: a definition of a “temporal part of experience” should be theoretically neutral—and presuppose as little as possible—between different accounts of the notions it relies upon.

In this respect, recent attempts to define the temporal parts of persisting material objects—chairs, statues, you and me—have proven particularly successful, offering a promising model. After all, if temporal parts of experiences are *temporal parts* in the perfectly general sense in which other entities have them, one should expect some close affinity with those other temporal parts. Another desideratum, then, is that definitions of the “temporal parts of experience” be construed as *natural extensions* of temporal parts in general:

⁶See Stout (1997, 2016), and Soteriou (2013) for a hybrid view—and see Steward (2013, 2018) for some discussion.

⁷Soteriou here refers to the subinterval conception reviewed in §2. The definition in §4 aims to have the same consequence.

⁸Another sort of neutrality appears desirable too: the terms of the definition ought to be available to as wide a range of different theorists as feasible, so that any conception of experience can in principle avail itself of similar definitions.

Desideratum #3—theoretical continuity: all things considered, a definition of a “temporal part of experience” should constitute a development of, or be consistent with, some existing workable definition of the general notion of a “temporal part” *tout court*.

Insofar as the temporal parts of persisting material objects go, a guiding assumption has been that, if x is a temporal part of y at t , x “incorporates all” of y at t (Heller, 1984: 27), in the sense that x has to be “big enough” (Sider, 2001: 59) so that part and whole “coincide” at t (Hawthorne, 2006: 85). Coincide in what sense? Spatially, so that part and whole occupy exactly the same region at t ? By way of material constitution, with part and whole sharing the same matter at t ? Sider (2001: 59) has offered a purely mereological characterization of such a constraint in terms of *overlap*: part x is “big enough” in the sense that x “overlaps at t everything that is part of y at t ”—where x “overlaps” y at t just in case there is something that is part of both x and y at t . Hawthorne (2006: 85) has followed suit, rendering coincidence in terms of *symmetric overlap* instead: x coincides with y at t just in case x overlaps everything that y overlaps at t and vice versa.

Yet it is unclear how the construals above might apply to experience. Can experiential parts and wholes either spatially or materially coincide? Not without prejudging rather difficult questions about the metaphysics of experience. As for Sider’s purely mereological approach, it presupposes we already have a sense in which an experience is “part” of another, whereas this is precisely what we were after in the first place.

This means that definitions of the “temporal parts of experience” must also be *adequate* along two dimensions at least. First, a viable definition ought to apply to experiences unproblematically: presumably, by seizing on those features experiences instantiate uncontroversially (rather than features experiences do not obviously instantiate):

Desideratum #4—experiential adequacy: a definition of a “temporal part of experience” should rely on features which experiences clearly instantiate.

Second, such a definition should also capture the sense in which the relationship between an experience and its temporal parts is *properly mereological*:

Desideratum #5—mereological adequacy: a definition of a “temporal part of experience” should guarantee that the relation between a temporal part and the experience it composes is genuinely mereological.

One promising way in which the latter can be achieved is by having the definition exploit one of the standard accounts of classical mereology.⁹ Briefly, such accounts develop an axiomatization of mereology: by providing definitions of the basic notions, supplemented with various axioms, so as to construct a formal system of the logical relations underpinning the relevant notion of “part.” Rival accounts differ primarily in terms of the different theoretical primitives they take as their starting point—as well as which axioms are more fundamental, or the number of axioms needed—even though those different primitives are interdefinable.¹⁰

⁹For useful surveys, see Cotnoir and Varzi (2021: ch. 2), Lando (2017), Parsons (2014), Simons (1987: chs. 1–2), and Varzi (2016).

¹⁰Cotnoir and Varzi (2021: 46–48), Simons (1987: §2.8).

There are at least two advantages for a definition of the “temporal parts of experience” to fit in some such standard account of mereology. First, doing so provides one compelling reason for thinking that the mereological relation it aims to define is genuinely mereological indeed. Second, *if* the definition *does* fit, it can then avail itself of the axiomatic resources of the standard mereological account it exploits—it can rely on the definitions, axioms, and inferences, which constitute such a system, and be amenable to formal treatment. This leads to another desideratum:

Desideratum #6—consistency with classical mereology: all things considered, it's theoretically preferable if a definition of a “temporal part of experience” fits in some standard account of classical mereology.

That is not to say that definitions that fail to fit any such account ought to be rejected, but they start with a handicap.

1.2 | Determination and temporal ontology

There are instrumental benefits to having a precise definition of the “temporal parts of experiences” too, as that notion incurs important *dialectical roles* in several debates about the nature of conscious experience.

One instance concerns the temporal ontology of experiences, and whether experiences need to be extended in time:

[...] there is an intuition that experiences of extended processes, such as an experience of a segment of a melody, are themselves processes that unfold in time, rather than punctate events.

(Lee, 2014a: 1)

Against this *extensionalist* intuition that experience be temporally extended, one might insist, along *retentionalist* lines, that they need not be:

[...], temporal experiences are *never* process-like in this way. That is, an experience of temporal duration or temporal structure does not itself have temporal structure, in the sense of having *experiences* as disjoint temporal parts.

(Lee, 2014a: 4–5)

In fact, Lee points out (*ibid.*), the question of whether experiences *are* extended in time needs to be carefully disentangled from a question about the *temporal structure* of such extended experiences, and whether they really have temporal parts arranged successively. Yet, if temporal parts of experience can be defined in a manner that makes their existence easy to establish (see §2), the mere availability of such a definition provides support for the extensionalist or “process” view.¹¹

¹¹On the dispute between extensionalists and retentionalists, see, for instance, Chuard (2011, 2020, 2023, *Forthcoming*), Dainton (2000, 2014a, 2014b, 2017), Lee (2014a), Le Poidevin (2007), Phillips (2010, 2011, 2014), Soteriou (2007, 2010, 2013), Tye (2003).

A separate dispute concerns certain foundational questions about the *mereology* of experience: according to an *atomist* conception, there are experiential atoms which (i) lack proper parts and (ii) *completely determine* the properties of any whole experiences they compose. In contrast, a *holist* conception denies at least (ii): whole experiences are *not completely determined* by the parts composing them.¹² But what are the experiential parts at issue in these opposite relations of determination? Are holists and atomists even talking about the same things? Not *if* such parts are *by definition* “derivative” for the holist:

If an experiential property is instantiated holistically over a period of time (in the sense that it is not instantiated in virtue of the existence of shorter, independently existing instantiations of the same property at sub-intervals within the interval, [...]), we can still say that the subject *derivatively* enjoys the property at each moment during the interval (compare how a section of a beautiful musical performance might be beautiful in its own right, vs. derivatively beautiful by being part of a beautiful whole).

(Lee, 2014a: 5)

If this characterization is read as being about the very terms of the dispute between atomists and holists,¹³ it would seem to suggest that the parts holists countenance just cannot be those of the atomist. In which case, if there is not a single and neutral notion of “part” for holists and atomists to have a genuine disagreement about, one might naturally worry that the disagreement turns out to be partly verbal. To keep such a threat at bay, a *neutral* definition of “experiential part” would seem desirable: one which allows atomists and holists to latch onto the same experiences, *regardless* of what grounds or determines them. In and of itself, of course, such a definition will not settle the dispute, but it may help “clean” it, ensuring there is no mere terminological disagreement in play.

I hope it is uncontroversial enough that neutrality *is* desirable. My aim is to show how it is achievable.

2 | THE SUBINTERVAL CONCEPTION

When it comes to *temporal parts* in general, by far the simplest approach is to individuate them as a function of the *temporal structure* of the wholes they compose. If a conscious experience has some duration, it occupies an interval *T*, itself divisible into shorter subintervals. Even if time is

¹²See, for example, Chuard (2022), Dainton (2000, 2010), Lee (2014b), Phillips (2011, 2014), Soteriou (2007, 2013). The latter dispute between atomists and holists concerns both *synchronic* and *diachronic* experiences—it is distinct, in this respect (and others), from the previous dispute about the temporal ontology of experience between extensionalists and retentionalists. On a strong version of holism (see Lee 2014b: 295), a whole *completely* determines the parts composing it. Weaker versions (see, e.g., Phillips, 2011; Simons, 1988; Smith, 1988; Wertheimer, 1925/1997) insist that whole experiences determine *some* of their parts, or that they have some emergent properties not determined by their parts. Note that Lee (2014a) has labeled his *retentionalist* answer to the previous question about the *temporal structure* of experience an “atomist” view, which risks inciting some confusion—*ditto* with Chuard’s (2011) use. Especially since extensionalist alternatives to Lee’s retentionalism can be developed both along atomist (Dainton, 2000) or holist lines (e.g., Phillips, 2011, 2014). Thus, while the two disputes overlap in some respects, it is best to keep them distinct. In what follows, I reserve the term “atomism” (following its more standard usage) for the mereological view that experiential parts determine the properties of the whole experiences they compose.

¹³On another reading, Lee is merely pointing out a substantive metaphysical difference, of course.

dense (between any two temporal locations, there is a third), we need not assume a conscious experience extended over T thereby “fills” every subinterval in T .¹⁴ But it will occupy *some*, and perhaps many.

According to the *subinterval conception* of temporal parts,¹⁵ if a whole experience E with duration T occupies or “fills” some subinterval t within T , E has a *temporal part* at t . For there is *some experiential event, state, etc.*, which occupies subinterval t and *only* t and is thus a *proper segment* of the whole. This approach exemplifies a natural picture of parthood, one connecting mereological composition and decomposition with the different *locations* or *regions*, spatial and temporal, which parts and wholes occupy—indeed, it appears to presuppose another mereological relation between some manifold (space or time) and regions or locations within it.¹⁶

The *temporal embedding* exploited by the subinterval conception is not enough, however. Your experience of Marin Marais's “Le Badinage” might occupy a subinterval of my heartburn's duration without being part of it—my experiences are mine and yours, yours. Here, it helps to keep in mind that a primary theoretical function of “temporal parts” talk arises in questions about the *decomposition* of certain experiences. Typically, one starts with some whole experience individuated one way or another, identified over some interval: temporal segmentation then serves to *zero in* on its temporal parts. In this context, it is rather natural for temporal segmentation to operate under various restrictions: inter alia, to the particular subjects having such experiences—even to *their particular streams of consciousness*, provided a subject could have several such streams (Dainton, 2000: 24–5):

the sub-interval conception of temporal parts of experiences: for any whole experience E occurring through some interval T in some subject S 's stream of consciousness φ , and for any sub-interval t within T , if there is an experiential event or state e in φ at t , e is a temporal part of E at t .¹⁷

The notion of “temporal part” so obtained is undemanding, and unsatisfactorily so, however. It tells us something important about the connection between temporal parts and their temporal location, yet very little about the nature of those parts, what properties they instantiate, let alone about their mereological connection to whatever whole(s) they compose. Thus, it says nothing about what makes a temporal part a part of *this* or *that* simultaneous whole experience (even within a given stream of consciousness). For instance, along with seeing the professor fall, you might have heard their scream, or caught the horrified look of some other pedestrian: though these occupy the same subinterval in your stream of consciousness, a temporal part of your auditory experience is part of *that* experience, not of your simultaneous *visual* experience. Likewise, your *visual* experience of the fall and your *visual* experience of another pedestrian's reaction may well compose an overall *visual* experience, yet neither need be part of the other. What this means, of course, is only that additional clauses must supplement the definition—temporal

¹⁴See Kleinschmidt (2017).

¹⁵See Hofweber and Velleman (2010: 37–49).

¹⁶See, for example, Brzozowski (2008), Gilmore (2018), Markosian (2014), Saucedo (2011), Uzquiano (2011).

¹⁷This purposely resorts to *temporal predication*, so as not to prejudge questions about the metaphysics of persistence, *pace* Stout (2016). It can easily be translated in terms of atemporal predication (Sider, 2001: 59–60). Is it problematic if the notion of figuring “in” a stream of consciousness looks mereological? Not any more than the fact that a subinterval is embedded in a larger interval—see also §6.1.

co-occurrence is not enough. The interesting question is: what clauses to add, and what is the best way of doing so.

3 | EXPERIENTIAL COINCIDENCE

A promising construal of the temporal parts of persisting objects takes the notion of *coincidence*—*qua* symmetric overlap—as its starting point.¹⁸ To extend such a construal to experience (§1.1), we need some sense of how an experience can overlap or coincide with another.

Whatever conscious experiences really are, they uncontroversially instantiate certain distinctive properties—their “experiential properties.” Though what a *complete* list of experiential properties should include will likely be disputed, some properties easily occupy a prime place on any such lists, especially the *phenomenal* properties of experiences, as well as their *intentional* properties.¹⁹ For experiences have distinctive phenomenal and intentional profiles.²⁰ Hence, I suggest, *in lieu* of mereological overlap, similar work can be done for experiences by *phenomenal and intentional overlap or coincidence*: that is, the *sharing of phenomenal and intentional properties*. It is important that *both* types of properties, phenomenal *and* intentional, be used in cashing out the relevant notion of overlap or coincidence.²¹

To spell this out, it helps to treat experiences as *bundles* of their experiential properties, *if only for heuristic purposes*.²² A whole experience extended through interval *T*—like your visual experience of the professor's fall—can be viewed as a distribution of its phenomenal and intentional properties over *T*. Were it to turn out that conscious experiences are *more* than just temporally distributed bundles of co-instantiated experiential properties, it would remain the case that, to each conscious experience, there corresponds a specific bundle of such properties—namely, its own. On this model, whereas a whole experience is tantamount to the entire bundle of its experiential properties, a proper part of it corresponds with a subset—that is, a smaller bundle—of those properties. This is not to say that just any subset of any experiential properties at any sub-interval is a proper part of some whole experience: rather, for any proper part of a whole experience, there corresponds a sub-bundle of co-instantiated experiential properties.

Experiential coincidence then becomes a relatively straightforward affair. A temporal part *e* at subinterval *t* *experientially coincides* with the whole experience *E* it contributes to composing by sharing at *t* *all* those phenomenal and intentional properties *E* instantiates at *t*, and vice versa. Hence, if part of a whole experience has the distinctive phenomenology associated with tasting red wine at *t*, or if it represents a taunting squirrel at *t*, so does the whole experience at *t*.

Some complications arise: cases where a definition in terms of experiential coincidence *tout court* leads to somewhat implausible consequences. Some such complications are easy to dispel.

¹⁸Hawthorne (2006: 85).

¹⁹Intentional in the *broadest* sense—one compatible with naïve realist conceptions, as well as various theories of perceptual content, be they pleonastic, fregean, russellian, construe contents as sets-of-possible-worlds, etc.

²⁰Some—Dainton (2000: 24–5), Bayne (2010: 24–8)—have proposed that such profiles, along with the time of their occurrence, suffice for individuating token experiences. I do not assume that experiences are to be so individuated, though they clearly can (see §6.4): I only assume that *some* experiential states *can* be individuated in such a way (see §4).

²¹Partly so as to remain neutral on the relationships between phenomenal and intentional properties: that is, whether (i) intentional properties determine phenomenal ones, (ii) whether the determination goes the other way around, from the phenomenal to the intentional, or (iii) whether these two types turn out to be independent of one another.

²²Compare Lee (2014a, 2014b).

First, temporal properties: a proper temporal part e of an extended whole experience E might last only 70 ms while E occupies an interval of 2 seconds. Does experiential coincidence imply that e also lasts 2 seconds, or that E lasts 70 ms too? No, and not just because experiential coincidence concerns *only* phenomenal and intentional properties.²³ There is a *temporal restriction* too—what goes for the occurrence of temporal parts and their instantiation of properties at a given time, also goes for experiential coincidence: it is *only during* subinterval t at which a temporal part occurs that *it and the whole experience* it composes share their experiential properties, and *only for those experiential properties* each has at t . The subintervals at issue not only serve to individuate given temporal parts (as with the subinterval conception), they impose restrictions on (a) *when* experiential coincidence holds, and consequently on (b) *which experiential properties* of the whole experience fall within the purview of such coincidence. In this sense, experiential coincidence is relatively *localized*.

A little more explicitly: say a property F is instantiated *locally* with respect to some interval t just in case:

local instantiation: x locally instantiates property F at t if and only if x instantiates F at t whether or not x instantiates F at any other time t^* .

A *locally instantiated property* in this sense is one that an experience *could have had only at t* , regardless of what is true about *that* experience at other times—even if, in fact, the experience happens to instantiate the property in question at other times too.²⁴

What the relative *locality* of experiential coincidence means is that experiential parts and wholes share their experiential properties at subinterval t when part e occurs, *only with respect to those experiential properties they instantiate locally at t* . This restriction helps with complications involving putative *intentional properties* of whole experiences. Imagine your visual experience of a pasture with grazing cows, as you let your gaze inspect each cow from right to left. At sub-interval t , when looking at Marguerite, isolated as she is from the other cows, temporal part e at t represents just Marguerite: and so, one might think, it has the intentional property of *representing one cow only*. Yet your whole experience obviously does not represent just one cow, at least not overall. That experiential coincidence is *local* explains why this presents no difficulty: at t , your whole experience also represents *only one cow* (it *locally* instantiates that intentional property at t), even though it may represent many other cows at other sub-intervals though its entire course.²⁵

²³Mereological properties can be set aside too, since they threaten to trivialize any such account: if *being a proper part of whole experience E* , or *being mereologically composed by part e* , were included, this alone would suffice to guarantee that e is part of E . Worse, contradiction ensues if they are shared by part *and* whole.

²⁴More formally: x locally instantiates property F at $t \leftrightarrow (x$ instantiates F at t and for any time t^* ($t^* \neq t$), it is possible that x does *not* instantiate F at t^*). The restriction is purely temporal, note. So defined, *local* instantiation is *relative*: for some interval T , a property may be locally instantiated at T provided its instantiation at T is independent of being instantiated before or after T . But interval T may be extended, and relative to some subinterval t within T , the property in question need not be locally instantiated at t —rather than through T .

²⁵What if we are counting the cows and Marguerite is cow #2? This assumes that the cognitive operation of counting, rather than being *based upon* perceptual contents, somehow makes its way into the sensory content of experience. Anyhow, it is still the case that *both* the part and the whole can *represent Marguerite as cow #2 at t* : even if such intentional property is *determined* by the whole counting operation over the whole extended experience, it can be instantiated by *both* whole and part at t when only Marguerite is perceived.

Other intentional properties *distinctive of whole experiences* can be ruled out as not falling within the purview of experiential coincidence *so construed*. Seeing the trajectory of a cyclist passing through a busy intersection, or hearing the entire first movement of Mozart's 8th piano sonata, are extended experiences that instantiate the intentional properties, respectively, of *representing the cyclist's trajectory*, and *representing the first movement in Mozart's 8th piano sonata*. If a whole experience E instantiates such an intentional property, it instantiates it *over* some interval T . And if experiential coincidence were *not* restricted to locally instantiated properties, it should follow that any shorter temporal part of E instantiates such intentional properties too, somewhat implausibly.²⁶ But *not* if experiential coincidence *is* restricted to *locally instantiated* experiential properties: relative to subinterval t in T , the intentional properties in question are non-local in this sense, and hence need not be shared by the relevant parts at t .

This restriction, note, sits perfectly well with a *holistic* picture of experience (see §1.2). Consider the experience of hearing a trumpet over some interval T : for the holist, (i) the intentional property (property F) of presenting/representing a trumpet over T (as well as the phenomenal properties constitutive of the phenomenology of such an extended experience) is a property which the whole experience E has over interval T , and (ii) what holds of the subject's experience at some subinterval t within T is determined by E being F over T , so that the intentional property of presenting/representing the trumpet at t (property G) is "derivative" in that it is determined by the whole E 's property F over T .²⁷ Suppose E has a temporal part e at t , so that (according to my proposal) E and e at t phenomenally and intentionally coincide at t . The restriction of locality on phenomenal and intentional coincidence means that E is only required to share its *locally instantiated properties* at t with e at t . This does not imply that E *cannot* have *nonlocal* properties such as F , which it instantiates over interval T . The restriction is entirely silent on this point and, in this respect, perfectly compatible with holism. All the restriction implies is that for E and its part e at t to phenomenally and intentionally coincide at t , e at t *only has* to share those phenomenal and intentional properties of E which E instantiates at t *locally* (the nonlocal ones are irrelevant for coincidence, not uninstantiated).²⁸

What is more, that E has some nonlocally instantiated properties at t (such as F , instantiated over T) is perfectly compatible with the fact that E also instantiates some phenomenal and intentional properties *locally* at t : whether it instantiates them *derivatively* or *not*. The locality restriction is entirely silent about that too. For it is only concerned with what holds of the *bearer* of a *specific* property: if E instantiates G locally at t , it does so independently of whether E (that same bearer) instantiates G (that very same property) at some other time. This says nothing about whether some other experience (distinct from E) or some other property (F), at t or some other time t^* , either determines, or is determined by, E being G at t .²⁹ For instance, at t , E presents or represents one specific note of the trumpet (a very brief Re), and this might be the only time a Re figures in the

²⁶Compare Soteriou (2007: 553; 2010: 233–5; 2013: 98, 102–6) on homogeneity.

²⁷See Phillips (2011, 2014) and Soteriou (2007, 2013).

²⁸The formulation of phenomenal and intentional coincidence in §4 uses universal quantification over the phenomenal and intentional properties experiential wholes and parts need to share, and such quantification is restricted to the locally instantiated properties of whole experiences—meaning: their non-local properties are irrelevant to the truth or falsity of such a formulation. The locality requirement does not even demand, note, that e at t does *not* share E 's nonlocal properties at t : only that it is not *required* that it does for phenomenal and intentional coincidence to hold.

²⁹In this respect, locality is much weaker than Gallois's (2017: §§1.4–1.5, 7.5) "time-restricted" properties defined as properties which "have no implications for how things are at other times" (2017: 11): *locally instantiated* properties *can* have implications for, and be implied by, *other* properties at other times, including properties of other experiences at other times.

“melody” over T . So, E has at t the intentional property of presenting/representing a brief Re , and it has it independently of whether E presents or represents another Re at any other time in T (in this case, it happens not to, we have assumed). That is a locally instantiated intentional property which E at t can share with e at t , along with the attendant phenomenal property of what it is like to hear a brief Re . Again, this much is compatible with holism: it does not preclude whole experiences like E from instantiating some properties non-locally (such as being F over T) *as well*. And it says nothing about whether those properties it locally instantiates at t are derivative or not: the property of presenting/representing a brief Re (property G , which E has at t locally) may well be derivative from the property of presenting/representing the whole succession of trumpet notes over T (property F , which E has over T), but G and F are not the *same intentional* properties, obviously.

Not only is this compatible with holism, but it seems the holist might in fact welcome such a restriction. After all, I presume a holist may not be willing to say that temporal part e at t instantiates property F (even if only derivatively): F is the intentional property of hearing the whole trumpet sound over the whole interval T . Yet e occurs only at t , and it does not seem as though, phenomenologically, the subject is somehow hearing the entire “melody” just at t .³⁰ Rather, whole experience e over T determines that its temporal part e at t instantiates (derivatively) the intentional property of hearing the trumpet at t , and that’s a *locally* instantiated property which part and whole can share at t .³¹

4 | TEMPORAL PARTS OF EXPERIENCE DEFINED

The approach just sketched aims to capture the sort of coincidence or overlap we were after: one that *can* apply to experiences (*desideratum* #4). A temporal part of experience, on this proposal, *coincides* with the bundle of experiential properties a whole experience locally instantiates at the specific subinterval t at which the part occurs:

the experiential coincidence conception of temporal parts of experience: for any whole experience E occurring through interval T in some subject S ’s stream of consciousness φ , and for some sub-interval t within T , there is an experiential event, state, etc., e in φ at t such that e is a *temporal part* of E if and only if (i) e occurs *only* at t , (ii) for any phenomenal and intentional property F which E *instantiates locally* at t , e instantiates F at t , and (iii) for any phenomenal and intentional property G which e instantiates at t , E instantiates G at t .³²

³⁰See Phillips (2011: 810; 2014: 150), Soteriou (2013: 97–8, 105–6).

³¹The locality restriction seems unnecessary for the retentionalist view that temporal experiences have *temporally extended contents*, representing extended events “in one go” as it were, combined with the further requirement that such experiences are themselves extended in time, and must be so extended in order to have the extended contents they do (see Lee 2014a: 4). On such a view, one may experience the succession [event A followed by event B], and the experience has such an extended content from t to t^* so that each segmentation of the experience from t to t^* has the same extended content. Since the whole experience needs to be extended from t to t^* , and instantiate such content from t to t^* , in order to have that content, the experience at t has *no* intentional properties locally. Hence, in the definition below (§4), clause (ii) is trivially satisfied on this view.

³²As with the subinterval conception (§2), the definition says nothing about t ’s *duration*: it could be 0, infinitesimal, or a longer (and perhaps even variable) duration. And it has inherited from the subinterval conception a restriction to the experiences of a given subject and a given stream of consciousness: we will see (§6.1) how to remove such a restriction to deal with some of the problem cases motivating it.

By way of explanation, it is important to outline some of the ideas behind the definition, and how it meets the desiderata spelt out earlier (§1).

The leading idea, to repeat, is to extend an existing definition of “temporal part” (Hawthorne’s) to meet *desideratum* #3 (theoretical continuity). One merit of Hawthorne’s definition³³ is that it draws on Nelson Goodman’s axiomatization of the parthood relation.³⁴ Notably, unlike other systems of classical mereology which take the notion of “part” or “proper part” as primitive, Goodman (1966: 49) defined the notion of “part” in terms of *overlap*, the latter being treated as a primitive. For our purposes, Goodman’s general approach brings several advantages.

For one thing, that “part” is not a primitive, but can be defined in terms of other primitives, offers a distinctive benefit when it comes to the temporal parts of experience. I started (§1.1) by asking what it *means* for an experience to be “part” of another—what such a mereological notion amounts to when applied to experiences. A Goodmanian approach allows for an informative answer, which is essentially *structural*: just like Goodman’s notion of (improper) “part” has something to do with the overlap of its relata, and just like a temporal part at *t* (according to Hawthorne) has something to do with the mereological coincidence between part and whole, likewise a temporal part of experience has something to do with the phenomenal and intentional coincidence between a whole experience and its temporal part. And, we’ll soon see, just like a Goodmanian “proper part” has something to do with the asymmetry of the (improper) “part of” relation (the whole is not an improper part of its part), a proper temporal part of experience has something to do with the asymmetry of phenomenal and intentional coincidence between part and whole.

It is also important to keep in mind what a definition such as the above aims to do. It is not a piece of conceptual analysis: its aim is *not* to capture the *meaning* of the term “part” or “temporal part” in a way that its meaning can be understood as *semantically composed* from the combined meaning of its *definiens*—the left-hand side of the definition is not supposed to be *synonymous* with its right-hand side. Nor is it a substantive metaphysical theory, in the sense that the *definiendum* is to be metaphysically grounded in or constituted by the more fundamental entities referred to in the *definiens*.³⁵ Rather, as Goodman (1966: ch. 1) was careful to point out, such definitions are only after a certain sort of extensional equivalence: the above definition—like Goodman’s—merely offers necessary and sufficient conditions for there to be *some* mereological relation between experiential parts and whole experiences. Still, such conditions *are* informative about the nature of the relation so defined: they tell us that “being a temporal part of experience” has something important to do with phenomenal and intentional coincidence between its relata at a time.

For another, this Goodmanian approach helps address *desideratum* #5 (mereological adequacy): one reason why the relation defined is *properly mereological* is that, just like Goodman’s definition, the holding of such a relation is tied with certain conditions on its *relata*, to the effect that they must *coincide* in the relevant sense.³⁶ Indeed, the central role coincidence

³³Aside from the advantages it has over other definitions: see, for example, Hawthorne (2006: 85–6), Olson (2006).

³⁴In Goodman (1966: ch. 2). See Cohnitz and Rossberg (2019), Cotnoir and Varzi (2021: §2.4.2), Parsons (2014), and Simons (1987: §2.3.1) for presentation and discussion.

³⁵They may well be so grounded, but the definition does not require it.

³⁶Relatedly, the Goodmanian framework promises that, *modulo* some relevant terminological adaptations, the definition can then avail itself of Goodman’s axiomatic apparatus and is thus amenable to formal treatment (*desideratum* #6).

plays in the Goodmanian approach helps overcome the deficiency found in the subinterval conception (§2). For phenomenal and intentional coincidence can serve to capture how a temporal part e is part of a specific whole E_1 rather than another E_2 : a temporal part of your visual experience of the professor's fall at t shares all phenomenal and intentional properties locally instantiated by that whole *visual* experience at t , but not those of your auditory experience of the professor's scream at t . *Ditto* with simultaneous experiences *within the same sensory modality*, provided they too differ phenomenally or intentionally. Experiential coincidence, that is, allows to capture a tighter bond between a temporal part and the whole experience it composes.³⁷

Yet another advantage is *dialectical*: the definition is *amenable* to a variety of different conceptions of experience, of phenomenal and intentional properties, etc., and thereby meets the desideratum of *neutrality* (#2). A neutral definition should contain a number of *placeholders*: terms that can be specified in different philosophical theories—regarding, for example, how to individuate experiences, whether experiences are representational, about the nature of perceptual content, whether such content is conceptual, whether or not the phenomenology of experiences supervenes on their content, what streams of consciousness amount to, etc. In this respect, the definition relies on little that should arouse much controversy: it assumes that experiences occur in and over time, that they have some sort of phenomenal and intentional properties (under some construal thereof), and that some such properties can be instantiated at specific times.³⁸

If one grants this much—which is not much—it is then possible to *derive* from clauses (i), (ii), and (iii), in the definition that there *is some* e at t which *is* indeed a *part*, if not also a *proper part*, of E . Another benefit, that is, is to have a definition that makes it difficult to resist the claim that experiences *do* in fact have temporal parts (*desideratum* #1), and they do so in a rather standard *mereological* sense (*desideratum* #5). The derivation proceeds *via* two related features of the Goodmanian approach.

First, there is the fact that “part” is defined purely in terms of overlap: hence, if two entities meet the overlapping condition spelled out in Goodman's definition, it is guaranteed (*by definition*) that one is part of the other. Similarly, if two experiences or experiential states meet the conditions spelled out in clauses (i), (ii), and (iii), it logically follows, by the definition above, that one is a temporal part of the other. That is, the mere fact that there is some instantiation e of some experiential properties at t with which a whole experience E experientially coincides at t , suffices to *entail* that e is a *part* of E at t .

Second, one can then resort to the definitions in Goodman's axiomatization—properly adapted to experience—to establish that experiences do have temporal parts, which are *genuine proper parts*. Start with Goodman's (1966: 49) notion of “part”: x is part of y just in case any z which overlaps x overlaps y . By substituting *experiential overlap* into this standard conception of “part”, we obtain that e is part of E just in case any e^* which experientially overlaps e also experientially overlaps E :

part_e: e is part of E at t if and only if, for any experiential event, state, etc., e^* , if any phenomenal and intentional property F that e^* has at t is instantiated by e at t , F is also instantiated by E at t .

³⁷A bond that can be made, in the final analysis, even tighter (see §6.1).

³⁸Precisely why the definition applies *regardless* of whether experiences are *events* in some (rich) conception thereof, as opposed to states, processes, etc.

Clause (iii) in the definition above specifies that a whole experience E shares at t every phenomenal and intentional property which e instantiates at t . This guarantees that if there is some experience e^* which shares its locally instantiated experiential properties with e at t , e^* will share them with E too. Hence, by $part_e$, experiential coincidence in clause (iii) *implies* that e is a part of E at t .

The companion definition of a *proper part*— x is a proper part of y just in case x is part of y but y is *not* a part of x (Goodman, 1966: 49)—can be translated via $part_e$:

proper part_e: e is proper part of E at t if and only if, for any experiential event, state, etc., e^* , if any phenomenal and intentional property F that e^* has at t is instantiated by e at t , F is also instantiated by E at t , and it's *not* the case that, if any phenomenal and intentional property F^* that e^* has at t^* is instantiated by E at t^* , F^* is instantiated by e at t^* .

Given $proper\ part_e$, whether e is a *proper temporal part* of E at t depends on whether, in turn, E is part of e : if it is, e and E are mutual parts of one another, in which case, e cannot be a *proper part* of E . And whether E is also a part of e depends on what restrictions govern experiential overlap and why. If the same restrictions used in clause (ii) of the definition of a temporal part above—that is, *all* and *only* phenomenal and intentional properties whole E instantiates *locally* at t must be shared with e at t —apply, there is nothing to prevent E from being a part of e (in the sense of $part_e$): for if e^* shares E 's *locally instantiated* experiential properties at t , then e^* also shares those same properties with e at t .

But why impose those restrictions here? After all, the sort of coincidence exploited in defining temporal parts of experience needs to be restricted for a reason: it is *only at t*, when e occurs, that e coincides with E . There is no expectation, however, that e and E *do*, or even *could*, coincide *beyond t*, for the simple reason that, unlike E , e does not occur at any other time. But there is no reason for experiential overlap, *in general*, to be similarly restricted, especially *not* when considering the question of whether E —that is, not just E insofar as it occurs at t , but the whole E over its entire course through T —could be part of e .

In which case, it is possible to find some experience e^* which experientially overlaps E over T , yet not e at t . For instance, some such e^* might occur at t^* rather than t , and instantiate E 's phenomenal and intentional properties at t^* —which e does not instantiate since e does not occur at t^* . As a result, E is *not* part of e at t (by $part_e$). And since e is part of E at t , clauses (i), (ii), and (iii) in the above definition entail that e is also a *proper part* of E at t (via $proper\ part_e$).

In short, here is what the above machinery delivers: borrowing from a Goodmanian approach to mereology, combined with the allowance that experiential overlap can be substituted for mereological overlap when it comes to experiences, we can prove that satisfaction of clauses (i)–(iii) in the definition guarantees that such a whole has a *proper temporal part at t*. And since the procedure can be replicated for any *distinct time* at which an extended experience E occurs, we obtain a version of the process view.

5 | EXTENSIONS

As we saw (§1.1), it is common to talk of the “parts” of an experience in other senses too—not just of their *temporal* parts. This raises some important questions about what these other

senses might amount to, and how they relate to the temporal parts of experience. A piecemeal approach—providing distinct, and largely unrelated, accounts of different kinds of experiential parts—would not just be cumbersome but fail to shed any light on the important similarities and differences between these notions. Not only that, but we may well shift notions without noticing, if we are not careful. In particular, it is important not to conflate a *temporal part* (one which coincides at t with the whole it composes at t) with a *temporary part* (e.g., in the case of persisting objects like you, a proper spatial part—your left foot—that a whole has at some time t , but which does not overlap everything that overlaps you at t).³⁹ Likewise with experiences, one ought not conflate a *temporal part* of experience with a *temporary* (but not perfectly coincident) intentional or *representational* part of experience, for instance. Thus, an experience e of the sound of a trumpet at t is not a temporal part of an experience E of the whole orchestra over T : e does not coincide with the experience of the whole orchestra at t , since it presents/represents only the trumpet, but not the oboe, the flute, and the strings, at t . That is, e is only an intentional or representational part of E at t (a *temporary* one if the trumpet does not play throughout the whole symphony)—though e is also a temporal part of a whole experience E^* of the trumpet throughout the interval T .

An important virtue of a definition of the temporal parts of experience, then, has to do with whether the approach can be systematically generalized to other kinds of “experiential parts” while serving to capture their differences. The definition in §4 *can* be extended to capture these distinct notions. Much like Edward Hopper’s “Lighthouse Hill” contains a picture of a lighthouse only (minus the surrounding landscape, that is), perceptual experiences can have *intentional* or *representational parts* in the following sense: your auditory experience of Ian Curtis singing “... unnerve...” is a representational part of your hearing “this is why events unnerve me”, just as your experience of yellow is a representational part of your experience of a yellow car. Each contributes to the presentation or representation of some whole event, scene, or object, by representing some part thereof⁴⁰:

representational part of experience: for any whole experience E occurring through interval T in some subject S ’s stream of consciousness φ , where E represents some object, scene, event, property, state-of-affairs, etc. x , and for any experiential event, state, etc., e in φ at t , e is a *representational* part of E if and only if (i) e represents some y and only y (ii) y is part of x , and (iii) any phenomenal and intentional property F which e instantiates at t is also instantiated by E at t .

Several things to note: first, this notion of “representational part” exploits in clause (ii) *another* mereological relation between what e and E represent—just like the sub-interval

³⁹See Sider (2001: 55–7).

⁴⁰This characterization by reference to the perceptual scene (compare Fodor, 2007: 109; 2008: 173) need not be construed as externalist: it can be taken to refer to the scene *as experienced* rather than the actual scene. Nor does it presuppose a Russellian conception of content: fregean *modes of presentation* of a whole perceptual scene, for instance, ought to be similarly decomposable into the modes of presentation of its different components, be they modes of presentation of perceived properties and relations, or of subregions of perceptual scenes, etc., which are individuated in a more fine-grained manner *via* the phenomenal character with which such properties or subregions are experienced: see, for example, Thompson (2009), as well as Chalmers (2006). There are at least two ways of turning the definition below into a fregean-friendly one: (a) by reading reference to x and y in the definition to mean x and y *under their specific modes of presentation*—as in x_{MPx} and y_{MPy} —in experiences E and e at t , or (b) by simply replacing x and y by those modes of presentation— MPx and MPy —themselves.

conception, as well as the definition in §4, presuppose a mereological relation between t and T . Second, T need not be temporally extended, if part and whole both occur at the same instant and only then (and $t = T$). Third, though the notion of a “representational part” does require experiential overlap between part and whole in clause (iii), such overlap need not be *symmetric*—that is, if E must share all of e 's phenomenal/intentional properties, the converse is not required. The reason is that there should be no expectation that a representational part and the whole experience it composes *coincide* at a time in the sense that the former is relevantly “as big as” the latter. Quite the opposite: a whole experience will instantiate more phenomenal and intentional properties than its proper representational parts do since it presents/represents more things.

Similar definitions can be developed for other kinds of experiential parts. For instance, if a whole experience has a complete phenomenal profile (e.g., the sum of all its phenomenal properties throughout its duration), it could have *phenomenal parts*, which instantiate some subsets of the phenomenal properties of the whole. If an experience of a complex event is *caused* by that whole event, a part of that worldly event may suffice to cause an experiential state which is a *causal part* of the whole experience. And if a whole experience is realized or produced by a complex neurophysiological process, *some* proper parts of that process may suffice to realize or produce experiential states which are *neurophysiological parts* of the whole experience.⁴¹

In all these cases, the same structure can be replicated by exploiting *yet another mereological relation*, which serves to identify what *kind* of experiential part is at issue. This suggests a general template—different types of experiential parts fall under a common genus:

experiential parts of experience: for any whole experience E occurring through interval T in some subject S 's stream of consciousness φ where E is \mathbf{R} -related to some x , and for any experiential event, state, etc., e in φ at t , e is an experiential \mathbf{R} part of E if and only if (i) e is \mathbf{R} -related to some y and only to y , (ii) y is part of x , and (iii) any phenomenal and intentional property F which e instantiates at t , E instantiates F at t too.

Here, x and y can be objects, events, properties, states-of-affairs, whole scenes, neurophysiological processes, etc. The crucial term is that of an \mathbf{R} relation, standing for some *intentional or representational relation* when it comes to representational parts, for the *instantiation of phenomenal properties* (phenomenal parts), for a causal relation of distal stimulation (with causal parts), or some *realization relation* between experiences and their neural correlates (neurophysiological parts), etc.—and, of course, temporal inclusion in the case of temporal parts.⁴² What this template provides is a generic recipe for constructing different types of experiential parts. Its availability hints that there can be a *systematic* approach for characterizing different kinds of experiential parts.

⁴¹Though it is unlikely all do: Lee (2014a, 2014b).

⁴²It is an interesting question (raised by an anonymous referee) whether the set of admissible \mathbf{R} relations is limited, or just any \mathbf{R} relation could lead to *some* notion of experiential part. My guess is in favor of the former: after all, it is a little difficult to see how the relation “being enjoyed in the vicinity of a kangaroo” can lead to a plausible, useful, let alone interesting, notion of experiential part. How to circumscribe admissible \mathbf{R} relations—and whether there is a principled way of doing so, or merely a case-by-case approach—is another difficult question.

6 | OBJECTIONS

The definition advanced in §4 tends to prompt a variety of putative counterexamples, all targeting the sufficiency condition in the definition: if these are indeed counterexamples, the definition threatens to overgenerate, implying that distinct and disjoint (i.e., nonoverlapping) experiences are mereologically related as part-to-whole when they obviously are not. Other concerns relate to some of the notions in the definition, finding them wanting. While some such concerns miss the mark (as I will explain), it is important to see that the definition in §4 has various resources available to deal with the others.

6.1 | Perfectly indiscriminable experiences, double streams of consciousness

One type of worry briefly alluded to when presenting the subinterval conception (§2) involves a *range* of cases where subjects have simultaneous experience that are perfectly indiscriminable phenomenally and intentionally. Cases like the following:

CASE 1: at t , subjects S_1 and S_2 each have distinct experiences, respectively e_1 and e_2 , where e_1 is a perfect phenomenal and intentional duplicate of e_2 .

Another variant goes:

CASE 2: subject S has two distinct and non-overlapping streams of consciousness ϕ_1 and ϕ_2 with, at t , two distinct but simultaneous experiences, e_1 in ϕ_1 and e_2 in ϕ_2 , which are perfect phenomenal and intentional duplicates of each other.

It should be obvious, in either case, that e_1 and e_2 are not mereologically related, since they occur in different subjects or different and nonoverlapping streams of consciousness.⁴³ Cases like these do not challenge the subinterval conception in §2, nor are they problematic for the definition in §4, which inherits the explicit restriction that whole experience E and its part e both occur (a) *in the same subject S* and (b) *in the same stream of consciousness ϕ at t* . With these restrictions in place, there is no risk that the definition in §4 implausibly results in treating e_2 as a temporal part of e_1 , even if e_1 and e_2 perfectly coincide phenomenally and intentionally.

However, some might complain this explicit restriction to a subject's stream of consciousness is doing too much "heavy lifting" somehow—or that the notion of a "stream of consciousness" itself needs clarification.⁴⁴ Whether or not concerns like these can be articulated

⁴³It matters that streams ϕ_1 and ϕ_2 do not overlap in **CASE 2**: if they did, there is no reason why e_1 could not be an (improper) part of e_2 .

⁴⁴As an anonymous referee did. For neutrality's sake, the notion of a "stream of consciousness" in the definition is to be read as yet another place-holder allowing any specific conception of streams of consciousness to be substituted therein. Note that it would be rather odd if one pressed an objection like **CASE 2**, only to later complain not to understand the notion of a "stream of consciousness." It matters that whichever notion of a "stream of consciousness" is presupposed by **CASE 2** can be substituted in the definition in §4. Note that, in claiming to be neutral, I only claim that the definition on offer can be *made compatible* with different substantive conceptions of streams of consciousness: I do not offer the definition itself as providing a substantive answer to the metaphysical question of what a stream of consciousness might be.

in more detail,⁴⁵ it is important to see how they can be altogether circumvented anyhow. There is at least one alternative formulation of the definition in §4, which suffices to block cases like **CASE 1** and **CASE 2** *without* resorting to the notion of a “stream of consciousness.” All it takes is to properly “modalize” the two clauses serving to express the mutual phenomenal and intentional coincidence of part and whole at a time:

the experiential coincidence conception of temporal parts of experience—modalized: for any whole experience E occurring through interval T in some subject S , and for some sub-interval t within T , there is an experiential event, state, etc., e in S at t such that e is a *temporal part* of E if and only if (i) e occurs *only at* t , (ii*) for any phenomenal and intentional property F which E *instantiates locally at* t , it's *not possible* that E instantiates F at t while e doesn't instantiate F at t , and (iii*) for any phenomenal and intentional property G which e instantiates at t , it's *not possible* that e instantiates G at t while E doesn't instantiate G at t .

Any talk of a “stream of consciousness” has been expunged—though reference to a given subject of experience has not.⁴⁶ Here is how the modification in clauses (ii*) and (iii*) takes care of **CASE 1**: though my experience e_2 at t happens to be a perfect phenomenal and intentional duplicate of yours, it could easily have failed to be—I might have closed my eyes at t , or been consuming LSD, suffer a panic attack, or simply look at exactly the same objects you saw but from a somewhat different angle. In which case, it is perfectly *possible* for my experience e_2 at t *not* to instantiate the properties your experience e_1 happens to instantiate at t —clause (ii*) is not satisfied, nor is (iii*). The same goes for **CASE 2**: if your distinct streams of consciousness aren't essentially connected in such a manner that what goes on in ϕ_1 (including e_1) *could* have been different from your experience e_2 in ϕ_2 , then clauses (ii*) and (iii*) aren't met. The modified definition does not overgenerate parthood relations where there should be none.

There is one remaining difficulty: the rather odd case (**CASE 1***, modified from **CASE 1**) where your experiences and mine are somehow *essentially connected* so that I necessarily experience exactly what you experience (in exactly the same way) and vice versa—for some reason, it is not possible for our experiences to differ phenomenally or intentionally. Note: if E and

⁴⁵One putative rationale behind such a concern assumes that streams of consciousness themselves could be conceived as mereological fusions of experiences, from the ground up, as it were (see Dainton, 2017: §5.4, 70). In which case, one might worry that resorting to such streams in the definition somehow presupposes the very notion that is being defined. This concern, it seems to me, appears to rest on the misguided assumption that the definition in §4 is a piece of conceptual analysis. It might also rest on a conflation between two different kinds of theoretical projects in mereology. On the one hand, there is what we might call a “decompositional” project: the attempt to define the notion of a “temporal part” in neutral terms, so as to individuate temporal parts uncontroversially—see Sider's (2001: 59–60) definition in response to those who claim not to understand the notion. On the other hand, there are more ambitious “compositional” projects: for example, to specify under what conditions certain wholes (persisting objects, persons, streams of consciousness) are composed of certain parts—see Van Inwagen (1990). Of course, these projects partly overlap and a complete theory should answer both. Nevertheless, when Sider (2001) defines temporal parts, he is not answering compositional questions—even the mereological nihilist can agree that temporal parts are to be defined the way Sider does. Likewise, the definition in (§4) is entirely silent on whether it is desirable—let alone feasible—to engage in a compositional theory of streams of consciousness.

⁴⁶In principle, it could: the modified clauses (ii*) and (iii*) also suffice to block the relevant problematic cases.

e in the definition in §4 are required to be both states of the *same subject* S , this case can be skirted around too: e_1 and e_2 may well be essentially connected in the way described, but they are experiences of *different subjects*. Nevertheless, another fix may be needed *if*, for some reason, we wish to do away with the restriction to given subjects of experience, or because **CASE 2** can be similarly modified: S 's two distinct and non-overlapping streams of consciousness, ϕ_1 and ϕ_2 , can be essentially connected so as to be *necessarily* indiscriminable phenomenally and intentionally (**CASE 2***).

Another version of the initial definition in §4 is available, however. Rather than modalize clauses (ii*) and (iii*), conditions on the holding of the mereological relation between e at t and E demand, *not* that they share the same experiential properties *tout court*, but that they share the same phenomenal and intentional tropes or *property instances*. For instance, clause (ii), so modified, would read: (ii**) for any phenomenal and intentional trope F^* which E instantiates locally at t , e instantiates F^* at t . Accordingly, our respective experiences may be perfectly indiscriminable phenomenally and intentionally, and necessarily so (**CASE 1***), but they do not coincide in the relevant sense: my experiential tropes are mine, and yours, yours. *Ditto* with **CASE 2***: if e_1 in ϕ_1 and e_2 in ϕ_2 are to be *distinct and non-overlapping*, e_1 's phenomenal and intentional property instances or tropes must be numerically distinct from e_2 's, just like it is standard to assume that my t-shirt's shade of yellow is, strictly speaking, a numerically distinct property instance or trope from that of your chromatically indiscriminable hat.⁴⁷

6.2 | Dependence

The definition in §4 also steers clear of complications faced by other accounts. Consider the “property entailment” view, according to which “phenomenal state A subsumes B when A entails B ” (Bayne & Chalmers, 2003/2010: 520), where *subsumption* between phenomenal states is to be thought of “as analogous to a sort of mereological part/whole relation among [token] phenomenal states” (Bayne & Chalmers, 2003/2010: 518). They take entailment to connect “state types”: “a state P entails a state Q when it is impossible (logically or metaphysically impossible) for a subject to instantiate P without instantiating Q ” (Bayne & Chalmers, 2003/2010: 519). Thus,

..., if P involves the phenomenal character as of seeing a red book and hearing a bird singing, and if Q involves the phenomenal character as of seeing a red book, then it is impossible to have P without having Q .

(Bayne & Chalmers, 2003/2010: 519–20)

⁴⁷In other words, **CASE 2*** must presuppose that e_1 and e_2 have *numerically distinct* phenomenal and intentional property instances of the same type. Otherwise, it is not clear why e_1 and e_2 could not in fact overlap in such a way that one is an (improper) part of the other—so that there is no objection. The proposal in clause (ii**) remains neutral on how experiential tropes or property instances are to be individuated. This could be a primitive fact (as it is for Campbell (1990: 69) and Ehring (2011: 76)—see Maurin (2018: §2.3) and Schaffer (2001)). Alternatively, it could be grounded in some of the distinct neurophysiological properties of the distinct brain areas $N1$ and $N2$, partly responsible for S 's distinct streams of consciousness ϕ_1 and ϕ_2 , respectively.

There are similarities between this “property entailment” view and the approach sketched in §4: for instance, it is natural to read the conditional in clause (ii) of the definition in §4 so that the locally instantiated experiential properties of the whole at t entail those of the part at t .⁴⁸ Even so, the “property entailment” view is thought to face certain difficulties which the definition in §4 circumvents. One involves interdependent experiences:

... A and B could be intuitively distinct phenomenal states that do not share any simple type but are nevertheless necessarily connected. This would involve a sort of *gestalt unity* that involves constraints on the co-occurrence of distinct phenomenal states. [...] the experience of the boundaries of a Kanizsa triangle is of a special sort that could not be had in the absence of the circles in which the triangle is embedded.

(Bayne & Chalmers, 2003/2010: 521)

In short:

CASE 3: it's impossible for S to have an experience of $x(e_1)$ at t without also having at t an experience of some y distinct from $x(e_2)$.

The problem is that, given the entailment from e_1 to e_2 , the property entailment view entails that an experience of the background (the 3 pies) is, rather implausibly, a part of an experience of some of the foreground (e.g., the illusory contour or boundaries of the illusory triangle), even if they appear clearly disjoint.⁴⁹ This case presents no difficulty for the notion of “temporal part” defined in §4, on the other hand.⁵⁰ Clauses (ii) and (iii) in the definition jointly demand that part and whole *share all* their locally instantiated phenomenal and intentional properties. These conditions are not met in **CASE 3**: the experience of the illusory

⁴⁸There are significant differences too. For one thing, (1) the two approaches are not extensionally equivalent if one view (property entailment) faces difficulties like **CASE 3** below, which leave the other (the definition in §4) entirely unscathed. For another, (2) the two views are structurally different: while the entailment from a whole to its part is asymmetric, experiential overlap is symmetric. Relatedly, (3) the entailment view only requires, at most, that a part shares *some* of the properties of the whole (enough for the entailment to hold—not even that, in fact: see **CASE 3**), not that they share all their relevant properties. As a result, (4) the property entailment view is ill-suited to capture a notion of “temporal part” since, in and of itself, property entailment falls short of ensuring that a temporal part at t can “incorporate” all of the whole at t . This means that the property entailment view is not theoretically continuous with existing definitions of temporal parts (*desideratum #3*). Nor (5) does it easily fit any standard account of classical mereology (*desideratum #6*). Indeed, (6) it is far from clear in what sense *entailment* can serve to capture a genuinely mereological relation (*desideratum #5*).

⁴⁹As I understand the case, Bayne and Chalmers are here referring, *not* to an experience of the whole triangle, but to an experience only of a part of the triangle: namely, the illusory boundary or contour occurring between the three pies. Though the pies themselves are not part of the triangle (the circular boundary of the pies certainly is not), the internal boundary of the pies perfectly overlaps with the edges of the triangle. However, the case concerns only the illusory boundaries of the triangle (i.e., the illusory contour between the pies): *they* need not share any part with the pies, which is why, presumably, an experience of the latter is not part of an experience of the former. Notice, though, that such a description shifts rather freely from talking about the mereological features of the figure itself to talking about the mereological features of an experience of the figure, which may be problematic (Simons, 1988: 162).

⁵⁰Nor, more pertinently, is it problematic for the notion of a “representational part” in §5: by clauses (i) and (ii), everything a representational part represents has to be *part* of what the whole experience represents. But an experience of just the boundaries of the Kanizsa triangle (e_1) does *not* represent a *part* of what the experience of just the pies (e_2) represents, since they are disjoint.

boundaries of Kanizsa's triangle (e_1) and that of the pies at the edges (e_2) do not mutually overlap in this way at all.

6.3 | Duplication, double-seeing

Another sort of example thought to threaten the property entailment view (Bayne & Chalmers, 2003/2010: 520–1; Lee, 2014b: 294) goes: imagine seeing two perfectly similar gray cylinders side-by-side, so as to enjoy two simultaneous experiences, e_1 and e_2 , one of each cylinder. The cylinders have the same shape and color so as to look exactly the same. Accordingly, the thought goes, e_1 and e_2 must instantiate the *same phenomenal properties*:

CASE 4: S has two experiences e_1 and e_2 with the same phenomenal properties (since e_1 presents/represents x and e_2 presents/represents y , where x and y have the same shape and colour, seen in the same conditions).

The two experiences are disjoint token experiences of the same phenomenal type which, by the “property entailment” view, means that one experience is, quite implausibly, part of the other, since “one state type entails the other (as the types are identical)” (Bayne & Chalmers, 2003/2010: 520–1).⁵¹ Similarly, it might seem as though **CASE 4** presents a counterexample to the definition in §4: since e_1 and e_2 share the same phenomenal properties, the sufficiency condition should entail, by clauses (ii) and (iii), that e_1 is a temporal part of e_2 , which is clearly not the case.⁵²

In fact, **CASE 4** is no counterexample at all—the thought that it is seems to rest on at least two mistakes: one about the example itself, another about what the definition in §4 says. The example is described as one where the two experiences of each cylinder *share the same phenomenal properties*. They do indeed, *although* in the sense that they share *some* phenomenal properties—namely, those associated with experiencing the color and shape of the grey cylinders. However, clauses (ii) and (iii) in the definition in §4 demand that, to be mereologically related as part-to-whole, e_1

⁵¹It is unclear why the entailment should hold in this case, however, if the “entailment” relation holds between *state types as they are instantiated by distinct token experiences* (Bayne & Chalmers, 2003/2010: 519), not just the state types themselves. It is perfectly possible in this case for one experience to *instantiate* a given state type without the other experience having to instantiate that same type (e.g., one gray cylinder might have been occluded, or it could have been blue).

⁵²A referee took this case to illustrate the general worry that, since “[e]xperiences are particulars,” attempting to define “a parthood relation [...] in terms of purely qualitative relations [...] is clearly a non-starter”—and also that “to get a kind of numerical identity out of qualitative identity” is “probably doomed to fail”—on the ground that “entirely separate particular events can share qualitative features.” It is unclear in what sense the definition in §4 aims to obtain some “kind of numerical identity” in the first place—let alone that it does so in terms of “purely qualitative relations.” To repeat, the definition merely imposes certain relational conditions between part and whole for them to be *mereologically related*. It does not aim to offer individuation conditions for the part, the whole, or the part-whole relation between them. Nor does the definition imply or require that the relation between part and whole somehow comes close to a relation of numerical identity: unlike e at t , the whole E at t instantiates (at t) the temporal property that it will occur at t^* , or that it will have a distinct temporal part at t^* , etc., so that e at t and E are numerically distinct, by Leibniz's Law. In any case, the problem with **CASE 4** (if it were one) is not that two distinct experiences (e_1 and e_2) end up being somehow “identical”: rather, the problem is supposed to be that those clearly distinct experiences would end up (by the sufficiency condition of the definition in §4) mereologically related as part-to-whole, even though they seem disjoint (since they are experiences of disjoint objects—the two rectangles).

and e_2 must share *all* their phenomenal *and* intentional properties. That they share *some* is not quite enough to satisfy the conditions in clauses (ii) and (iii).

Unless one operates under the assumption that, somehow, the phenomenal properties associated with experiencing the shape and color of the cylinders are the *only* relevant phenomenal properties at play. But it is unclear where this assumption comes from, let alone why it should be true. The definition in §4 does not itself rely on any such assumption: it quantifies overall *all* phenomenal *and* intentional properties, not just those associated with experiencing color and shape—or any other so-called “qualitative” features (whichever those may be) of the perceived objects.

More importantly, the suggestion that e_1 and e_2 share their phenomenal properties seemingly rests on an *incomplete* characterization of **CASE 4**. The two cylinders are arranged side by side, in a way that is visually available to the perceiver: one cylinder is on the right, the other on the left. At the very least, this constitutes an important *intentional* difference between e_1 and e_2 , since e_1 conveys information about (and thus presents/represents) the *location* of the right cylinder, while e_2 conveys information about the cylinder on the left and *its* location—presumably, this also constitutes a rather notable phenomenal difference between e_1 and e_2 .⁵³ Hence, e_1 and e_2 do *not* share *all* phenomenal and intentional properties, and the conditions in clauses (ii) and (iii) are simply not met. **CASE 4** fails as a counterexample.⁵⁴

Nor, it is worth noting, does this example meet the conditions in the modified—modalized—version in §6.1 either: clause (ii*) is not satisfied because, while the two cylinders happen to be both gray and cylindrical, one of them could easily have been blue or triangular. In which case, it's *possible* for e_2 not to share e_1 's phenomenal and intentional properties.⁵⁵

What if (as a modification of **CASE 4**) one suffered a “doubling” of experience in one's single stream of consciousness, so as to simultaneously enjoy two numerically distinct experiences (realized by distinct neural states), which are perfect phenomenal and intentional duplicates, *representing just one and the same grey cylinder in exactly the same way*?⁵⁶ Presumably, this cannot amount to a simple case of “seeing double”: typically, in the latter, the very same object might appear twice in one's visual field, seemingly at slightly different (perhaps partially overlapping) spatial locations. In which case, the two experiences would again be phenomenally and intentionally *discriminable*. But if the two experiences at issue really *are* perfect and complete phenomenal and intentional duplicates, there should be *no phenomenologically detectable* difference between them.⁵⁷ If so, it is unclear how one could even suspect or tell there are *two* distinct experiences: the case, rather, should seem to the subject as though they are having just one experience of one grey cylinder, not two. And then, it should seem perfectly reasonable to bite the bullet: unless there is *some* phenomenally accessible

⁵³The difference in spatial information would suffice to distinguish fregean modes of presentation of the cylinders too.

⁵⁴Nor is **CASE 4** problematic for the definition of a *representational part* in §5: such a part represents something that is, by clause (ii), a *part* of what the whole represents—and, by clause (i), it represents *only that part*. Neither e_1 nor e_2 is a representational part of the other in this sense: the two cylinders are mereologically disjoint (and experienced as such).

⁵⁵Nor does it meet the further modification suggested in clause (ii**). Lee (2014b: 294) suggests **CASE 4** can be handled by the property entailment view by insisting that “each experience of gray involves a more determinate experience of a particular kind of gray cylinder at a specific location”—compare Bayne and Chalmers (2003/2010: 521, 523). Though it is not clear whether Lee means to exploit the differences in spatial content between e_1 and e_2 , or the numerically distinct phenomenal/intentional tropes each instantiates (or both).

⁵⁶Thanks to Josh O'Rourke for this example.

⁵⁷Though they might differ in other ways: again, such a case fails against the further modifications—(ii*) and (ii**)—introduced in §6.1.

difference between e_1 and e_2 , there is little reason to think there is not in fact just *one* experience (and so, again, no counterexample).⁵⁸

6.4 | Temporal parts of experiences *are* experiences

Another concern about the definitions on offer centers on their failure to address the “more substantive issue”⁵⁹ of whether experiences have “experiences as disjoint temporal parts” (Lee, 2014a: 4–5). They *do* fail in this regard, because, to my mind, the question is not substantive, but entirely *verbal*.⁶⁰

It is easy to find a variety of different construals of the term in question in the relevant literature. Here is a brief list of notable candidates:

(DE1) e is an *experience*_{#1} =_{df} there is a set of neural events N such that N either causally suffices to bring about, or necessitates, the occurrence of e .⁶¹

(DE2) e is an *experience*_{#2} =_{df} e has phenomenal properties which are discernible in introspection.⁶²

(DE3) e is an *experience*_{#3} =_{df} if a subject S (being sufficiently sophisticated) has e , S can demonstratively refer to, and form non-inferential beliefs about, what e presents/represents.⁶³

⁵⁸A referee suggested I adopt another approach instead, on the ground that it does not “conjure numerical identity out of qualitative identity” (see note 52): namely, that a temporal part of experience at t be “numerically identical” with the *instantiation* of phenomenal and intentional properties locally instantiated by the whole experience at t (compare Lee (2014b: 292), though this is not Lee’s own approach). There are several reasons why such an alternative will not do. For one thing, this “identity” approach makes little difference to the cases just reviewed (§§6.1–6.3): it faces the same difficulties, and needs to appeal to the same solutions—and in one respect, it makes things worse. If the phenomenal and intentional properties in question are *universals*, the approach needs an account of how distinct but simultaneous experiences in distinct streams of consciousness of the same subject (**CASE2**) can count as *distinct instantiations* of the very same properties, and on what ground (the fact that they are “in” different streams (§4), that they could have been instantiated independently (§6.1)?). Worse, given that experiential parts just *are* instantiations of properties, on this view: if two simultaneous experiences share *just one* same phenomenal universal (**CASE 4**), it would seem as though they have some part (the universal) in common (Armstrong 1997: 97–8, 119–23; Paul, 2002), although the experiences in question are assumed to be disjoint. (NB: This difficulty does not arise for the Goodmanian approach in §4, nor can it be helped by appeal to spatial contents.) Unless, of course, the properties instantiated are specific tropes, rather (§6.1).

In addition, this “identity” approach fares rather poorly in light of our desiderata: (i) it is not as *neutral* (#2) as the Goodmanian approach in §4, which is compatible with the suggestion that experiential parts *are identical* with the properties of the wholes they compose, but also with its rejection (see §3); (ii) it is not *continuous* (#3) with standard definitions of temporal parts for continuants, since none resorts to property identity; nor (iii) does it seem *mereologically adequate* (#5): neither the relation of improper parthood, nor that of proper parthood, is tantamount to numerical identity (the first only takes numerical identity as a limiting case (Cotnoir and Varzi 2021: 58), the second implies numerical distinctness); relatedly, (iv) it does not *fit* any of the standard definitions of “parthood” in classical mereology (#6).

⁵⁹Says another referee.

⁶⁰As for *disjointness*, this might be too stringent a demand: a dense succession of *overlapping* temporal parts of varying lengths, where each temporal part shares some parts with many others (though at least some parts may be temporally disjoint from some others), still constitutes a version of the process view.

⁶¹Lee (2014a: 3–5).

⁶²Grube (2014: 28–9).

⁶³Grube (2014: 25–6).

(DE4) e is an *experience*_{#4} =_{df} e is immediately preceded and succeeded by some unconscious states.⁶⁴

(DE5) e is an *experience*_{#5} =_{df} e is a psychological state with phenomenal and intentional properties.

(DE6) e is an *experience*_{#6} =_{df} e is a phenomenal state such that (i) e can be enjoyed “all at once” and (ii) e can, with other experiences, compose a single “phenomenally unified” composite experience.⁶⁵

The first thing to note is that these rival definitions of “experience” are not equivalent: there are cases where these definitions deliver different results. The second thing to note is that the definition in §4 is perfectly compatible with all these construals of “experience.”

Third, there is no substantive question as to which notion of “experience” is the right one *simpliciter*. How to define “experience” is a verbal issue. That is not to say there is nothing interesting about the differences between these rival definitions, let alone that they are not connected in any way to some substantive issues. It is likely such notions of “experience” either presuppose different theoretical projects with divergent explanatory goals or that they aim to capture what they regard as an essential aspect of the pretheoretical notion of “experience,” while downplaying some others. Differences between the background explanatory projects may well be quite substantive—though this need not mean the term “experience” is essential to such projects and could not be profitably replaced.

So why not include the additional requirement that temporal parts of experiences be “experiences” in the definition in §4? First, note that the different construals of “experience” listed above all allow for experiences to have phenomenal and intentional properties: with the exception of (DE5), they deny this is sufficient to count as an “experience,” but disagree as to what further requirements need to be added. Hence, there is no disagreement that “experiences” at the very least instantiate the sorts of experiential properties exploited in §§3–4: in this respect, the definition in §4 does achieve some desired neutrality *as it is*. Of course, if one takes (DE5) for granted, temporal parts of experiences *are* experiences, obviously. But saying this adds absolutely nothing substantive to the definition in §4.

Second, adding the requirement that temporal parts of experiences be “experiences” in some sense threatens to turn the question of what temporal parts of experiences are into another verbal issue. Everyone can accept there are temporal parts in *this* or *that* sense. But if temporal parts themselves have to be experiences as well, they will disagree about what additional conditions (derived from the different construals of “experience” above) temporal parts have to meet and, in different situations, whether a given experience has temporal parts or not. The relevant facts can be accepted by all, however: just not how to *describe* those facts when using the term “experience,” and what conditions *must* be imposed as a result.

Third, and more importantly, it should seem perfectly unproblematic if temporal parts of experiences are not “experiences” themselves—(DE5) notwithstanding. After all, it is not as if there is any *general* mereological requirement that parts and wholes be of *exactly the same kind*. Not all parts of groups are groups, not all parts of sentences are sentences, just like table legs usually are not tables, and human legs are not persons.

⁶⁴Tye (2003: 97).

⁶⁵Bayne (2010: 21–3).

The same goes for experiences: for each notion of “experience” listed above bar one (DE5), there would be many perfectly legitimate temporal segmentations of experiences that are not temporal parts, merely for the rather trivial reason that we chose to build some notion of “experience” into the definition. This seems a rather gratuitous cost, especially in the absence of any compelling reason to demand that temporal parts be experience themselves.

7 | CONCLUSION

I have advanced a definition of the temporal parts of experience, another of their representational parts, as well as a schema for thinking of experiential parts more generally. These illustrate, I hope, some useful tools for thinking about the mereology of experience: tools that display the required theoretical neutrality to serve in a number of disputes about conscious experiences; tools which can be used to entail the existence of the relevant sorts of parts, and are left untouched by various putative counterexamples.

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