

# Experiential holism in time

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Temporally extended experiences, experiential holists have it, are not reducible to successions of their temporal parts because some whole experiences determine their parts (in some way). This paper suggests, first, that some forms of experiential holism are in fact consistent with the rival atomist view (that experiences *are* successions of their parts) and, second, that the main reasons advanced for experiential holism are compatible with atomism too. The paper then looks at how holistic determination of its parts by a whole experience might take place in time, arguing that it is either inconsistent or undermines widespread assumptions regarding the mechanisms underlying experiences.

## KEYWORDS

atomism, Gestalten, holism, mereology of experience, structure of consciousness in time, temporal experience

## 1 | INTRODUCTION

Hearing Ian Curtis launch into “Ceremony,” you hear “this is why events unnerve me” by hearing each phoneme, one after the other, at a certain pace, for some duration. You perceive, that is, a temporally extended event by having (i) a perceptual experience itself extended in time, which involves (ii) successive shorter experiences of some of the stages composing that event, where (iii) those shorter experiences are *part* of your longer experience. Or so the phenomenological appearances seem to suggest.

What is the nature of the relationship between a whole experience and its parts? A bottom-up approach might seem tempting: As they successively unfold, shorter experiences completely fix the nature of the whole experience they compose over time. There is an influential strand in the history of both philosophy and psychology warning precisely against this temptation, however:

There are wholes, the behaviour of which is not determined by that of their individual elements, but where the part-processes are themselves determined by the intrinsic nature of the whole. (Wertheimer, 1925/1997, p. 2)

We know that the response to a stimulus complex is not the sum of all responses to its individual components, but an organized pattern in which each part depends upon the organization of the whole. (Koffka, 1935, p. 601)

And for contemporary echoes of this tradition:

When it comes to experience, it is significant stretches, not instants, that are explanatorily and metaphysically fundamental. In other words, the key claim required to make sense of temporal experience is not merely that experience is *extended* through time, but rather that there are certain durations of experience which are *explanatorily* or *metaphysically prior* to their temporal subparts. (Phillips, 2014, pp. 149–150)

... our approach to consciousness should be holistic. Rather than begin with atomic states of consciousness that must be “glued together” to form total phenomenal states we should regard total states as the basic units of consciousness ... The elements of a subject's total phenomenal state do not “enter” consciousness as independent units but only *en masse*. (Bayne, 2010, p. 244)

“Holism” is the generic label standardly used for views of this sort. In slogan form, a whole experience is not just “the sum of its parts”: Meaning (I take it), not only that the whole *is distinct* from the sum of its parts, but that the whole *is not completely determined* by its parts, because the direction of determination goes the other way around, from the whole *to* the parts. Though holistic conceptions of experience have not garnered much attention in the past decades, there are signs of a resurgence, as the passages just cited attest.

It remains unclear, however, what holistic conceptions of experience amount to exactly, let alone why they should be true in the first place. Or so I will argue. My aim is to survey *some* main versions of experiential holism and identify how each contrasts with experiential atomism. I will then look at the considerations advanced in support: We will find that many holistic claims come grounded in motivations which fall well short (being themselves compatible with atomism). Finally, I will argue that holistic explanations are problematic at best, inconsistent at worst. This suggests that, for a substantive holistic conception of experience to be viable, much work remains to be done in articulating what the desired holism is committed to and why.

The discussion will centre exclusively around *temporal experiences*: experiences which seem to present or represent briefly extended events and processes. For synchronic and diachronic versions of experiential holism are largely orthogonal: In principle, it is possible to reject one while endorsing the other. More importantly, holistic explanations do not always apply in the same way in diachronic and synchronic cases—indeed, the complications in Section 5 specifically target diachronic versions of experiential holism. Hence, the two cases had better be treated separately, as they often are.<sup>1</sup>

<sup>1</sup>On synchronic holism, see Dainton (2000, Chapter 8).

## 2 | ATOMISM AND HOLISM

To get a sense of the nature of the dispute between experiential holism and atomism, at least a sketch of the latter is needed. The three theses below offer a skeletal outline of an atomist conception of experience<sup>2</sup>—one whose details different atomists may fill in differently:

**A1:** There are temporally short-lived *experiential events* or states which occur successively.

**A2:** Temporally extended *experiential wholes* just *are successions* of such experiential events (states).

**A3:** The properties and relations of experiential events (states) arranged in a given succession *completely determine* the properties of the whole.

Some explanations are in order.

### 2.1 | Parts of experience

A1 specifies the “atoms”: *Very short*, perhaps even instantaneous, experiential events or states—whatever the shortest *temporal parts* of experiences may be.<sup>3</sup> Different approaches to individuating such temporal parts are available.<sup>4</sup> What is needed here is a *neutral* definition between atomist and holist conceptions of experience: Otherwise, if “part” in the atomist’s “parts completely determine the whole” is not definitionally equivalent to “part” in the holist’s “the whole determines its parts,” the dispute risks collapsing into a largely terminological one. To this effect, the *subinterval conception* may prove useful, as it exploits the *temporal structure* of whole experiences extended in time so as to zero in on their specific temporal parts, in a way equally available to atomists and holists. If a whole experience  $E$  (e.g., hearing Ian Curtis sing) is temporally extended over interval  $T$ ,  $T$  can be divided into several shorter intervals, *some* of which (including  $t$ ) are filled by your auditory experience—not by the whole experience  $E$ , which occurs over  $T$ , but by a proper segment thereof. In this sense, your whole experience  $E$  has a temporal part  $e$  at  $t$ .<sup>5</sup>

Talk of “atoms” should invite caution—similarly the “atomist” label—since atomistic commitments can vary across domains.<sup>6</sup> Atomistic views in general may encompass different combinations of the following theses: (i) atoms are themselves *partless* (not further mereologically decomposable); (ii) atoms are *fundamental* (they do not depend—“vertically” as it were—on anything more fundamental); (iii) atoms are *ontologically independent* from one another (“laterally” independent; being able to exist without other atoms); (iv) atoms *completely determine* anything they compose. As thesis A3 makes clear, it is *only* with (iv) I will be concerned here: Some experiential events are “atoms” in the sense that they—together with other atoms—fix the properties of any experiential whole they compose.

<sup>2</sup>Drawing on remarks from Locke (1690, Chapter 14, Section 6)—see Chuard (2017, 2020).

<sup>3</sup>Where *experiential* events or states instantiate both phenomenal and intentional properties at a time (whether the latter are conceived along relationist or representationalist lines). They are “experiences” in this minimal sense—though not, perhaps, in some more demanding sense: see, for example, Grube (2014).

<sup>4</sup>Contrast Dainton (2000, pp. 24–25) and Lee (2014b).

<sup>5</sup>Hofweber and Velleman (2010, pp. 37–49). This is not to say the subinterval conception is the only or best definition available: for discussion, see my “Experiential parts”.

<sup>6</sup>For the evolution of atomism in the history of science, see Chalmers (2014). Even *mereological* atomism comes in different shades: compare Fine (1994, p. 150) and Varzi (2016, Section 3.4)—my usage is closer to the former’s. For a similar usage in the philosophy of quantum mechanics, see Maudlin (1998/2007, pp. 634–635).

That the issue is essentially about (iv) *what determines what* between experiential parts and wholes is easily gleaned from the passages quoted earlier. It is explicit in Wertheimer's (1925/1997) remark that “what I experience at each place in the melody is a *part* which is itself determined by the character of the whole” (p. 7), in Koffka's (1935) insistence that “each part depends upon the organization of the whole” (p. 601), as well as Phillips's (2011a) contention that “the dynamic *content* of our experience at short timescales is metaphysically dependent on the content of experience over longer timescales” (p. 11). Formulations like these are clearly concerned with the *direction of determination* between parts and wholes.

Not only that, but such passages are altogether silent, note, on whether (i) temporal parts of experiences are decomposable into yet smaller parts, whether (ii) such parts depend on something more fundamental (for instance, whether physicalism is true), or whether (iii) experiential parts depend on one another. Likewise, the atomist view sketched here will likely reject claim (i) about *partless atoms*, since even temporally *unextended* experiential events might decompose into proper *simultaneous* representational parts, for instance. As for (ii) *fundamentality*, even the most basic undecomposable parts of experience need not be fundamental if they depend on their neurophysiological realizers, for instance. And as I will argue later (Section 4), questions about (iv) the direction of determination between parts and wholes need to be carefully disentangled from questions about (iii) the relations between the parts themselves.<sup>7</sup>

Failure to keep these distinct theses apart threatens recognition of different forms of atomism, both across and within different domains. Perhaps, the “atomist” label had better be shelved altogether—where “mereological reductionism,” “anti-holism,” “bottom-up part-whole determination,” and so forth, could serve as apt substitutes. In any case, the substantive issue between *experiential holists* and their critics remains whether or not experiential parts completely determine the wholes they compose—not the largely terminological question as to what views properly fall under the “atomist” label.

## 2.2 | Mereological reductionism

A2 characterizes whole experiences *as the atomist conceives of them*: as *identical*, that is, to successions of temporal parts. In this sense, such atomism is *reductionist*. But if successions are mereological sums or fusions of their parts, they are not “mere sums” (see Fine, 2010, p. 571): A succession exemplifies a specific temporal arrangement or structure where temporal relations between the parts matter to the identity of the succession. (In any case, if temporal parts are individuated in part via their temporal location, their arrangement supervenes on such locations so that the contrast between *successions* and “mere sums” will not amount to much.)

If experiential holism essentially denies that whole experiences—at least for *relatively short* whole experiences, such as the experience of the throw of a cricket ball, say<sup>8</sup>—are *reducible* to their parts and successions thereof, we should take care to separate the different forms such denial might take—different grades of holism. At one end of the spectrum, we find the view

<sup>7</sup>On (iii) more generally, see Wilson (2010).

<sup>8</sup>A holist may allow, *if* an entire day's succession of experiences constitutes a genuine day-long experience, that such a whole is determined by its temporal parts. This implies some threshold, where the holist determination thesis is not meant to apply to experiences above the threshold. Phillips (2011a, p. 817) is concerned with whole experiences of about 300 ms—or half a second in (2014, p. 150).

that the relevant whole experiences *completely determine* their parts in the sense that “there are certain durations of experience that are *explanatorily* or *metaphysically* prior to their temporal subparts” (Phillips, 2014, pp. 149–150): As a metaphysical claim, this reads like a thesis of *relative metaphysical priority* such that whole experiences are metaphysically more fundamental than their parts—the opposite priority to that favored by the atomist. Call it *strong holism*. At the other end, there is the weaker view—*weak holism*—that at least *some features* of some whole experiences *resist reduction* to their parts: features which are “novel” or “emergent” in the sense of being neither instantiated, nor fully determined, by the parts.<sup>9</sup>

Between these, figures a seemingly common version of experiential holism, according to which whole experiences *are not completely determined* by their parts because at least *some features* of at least some experiential parts are determined by the whole—*intermediate holism*, say. Thus, when Wertheimer (1925/1997, p. 5) insists that the experience of each note in a melody—in particular, the “flesh and blood of a tone,” by which he may mean the tonal key—“depends upon its role in the [whole] melody,” he need not imply that *every* feature of every experienced note depends on the whole: only their harmonic properties, say, but not the particular notes they are (e.g., a *Sol*) or their temporal location and duration. Nor need he deny that an experience of the whole melody is at least partly a function of some of its parts—for example, that the whole experience is of a melody containing a *Sol* at *t*.<sup>10</sup> That *some* experiential parts owe *some of their features* to the whole experience they compose suffices to resist the atomist’s reductionism: Experiential parts and whole may *mutually determine* one another, *albeit* in *different respects*. In this sense, neither whole experiences, nor their parts, need be more fundamental than the other: They are *metaphysically on a par*, so to speak.<sup>11</sup>

## 2.3 | Determination

A3 spells out the *direction* of determination between experiential parts and wholes in a *distinctively atomist* account: It goes with that of mereological composition, from the parts to the whole. What does determination amount to here: Supervenience, entailment, necessitation, grounding, the “in virtue of” relation, something else? It is now customary to acknowledge that

<sup>9</sup>On emergent wholes and their “novel” features, see Wertheimer (1925/1977), Nagel (1952), Rescher and Oppenheim (1955), Grossmann (1977), Simons (1988), and Smith (1988). Like other forms of emergentism (see, for example, Baysan & Wilson, 2017), it faces the difficulty of (a) identifying truly “novel” properties which are not instantiated by any of its experiential parts, and (b) explaining how such properties are not determined by those of the parts.

<sup>10</sup>Similarly, when Phillips suggests that a batsman can only experience the motion of a cricket ball at an instant “in virtue of that instant being a temporal subpart of a longer experience that has the ball’s motion as object” (Phillips, 2014, p. 150), this is compatible with allowing that the longer experience owes *some* of its representational properties (regarding, say, the color or spatial location of the ball) to its parts.

<sup>11</sup>If weak holism is the weaker form of holism there is, it needs to be distinguished from a possible middle ground between atomism and holism, according to which neither the whole experience determines its parts, nor do its parts determine the whole (Lee, 2014b, p. 297). Curiously, though, this “no priority” view sides with *atomism* and *weak holism* in denying that whole experiences determine their parts, but it also sides with *strong holism* in denying that whole experiences are determined *in any way* by their parts. In this respect, it is an odd middle ground, since it rejects something even moderate versions of holism can concede. Nor is it clear why, merely *qua* middle ground, it should appear as a “more plausible” way to resist holism (as a referee put it). After all, the view must explain the apparently constant accident that experiential parts and wholes coincide and locally share so many of their properties when neither determines the properties of the other.

*supervenience*, strictly construed as necessary co-variance, amounts to little more than a “surface” relation, a “symptom” or consequence of a “deeper” relation of determination or grounding (see, for example, Kim, 1993, p. 167; Schaffer, 2009, p. 364).<sup>12</sup> But how to construe the latter, exactly?

I will stick to talk of “determination” (following Rosen, 2010), assuming at least that, if  $x$  determines  $y$  in some respect  $F$ , (a) the relation is *asymmetric*, it implies (b) that  $y$  being  $F$  *supervenies* on  $x$  (any  $F$ -difference in  $y$  owes to some difference in  $x$ ), so that (c)  $y$  *depends* on  $x$  for being  $F$  in the sense that, without  $x$ ,  $y$  would lack the relevant respects (keeping all else fixed). When convenient, I will resort to the relatively uninformative “in virtue of” locution merely to indicate the intended direction of determination. This is no definition, analysis, or elucidation: merely a set of minimal constraints to indicate what kind of theoretical work the relation is supposed to be doing.

Two *caveats*: First, what is being determined is some experiential event or state in at least *some respects*, where those respects *can* be understood as *properties* the determined event/state instantiates because of such determination. Crucially, this allows for *partial determination*—only *some* properties of an experience may be determined by another—as well as *mutual determination*: Just as the *function* of a hand may depend on the function of the whole arm it composes while the *weight* of the arm depends in part on that of the hand (Wilson, 2014, pp. 565–566), similarly, we have seen (Section 2.2), it could be that *some feature* of a temporal part of experience depends on the whole (e.g., representing motion) while the whole depends on its parts in some other respects (representing a uniformly *white* cricket ball, say). There is no reason why mutual determination should end up being problematically circular, or to expect it clashes with the *asymmetry* of determination, *provided different respects* of whole experiences and their parts are so determined.<sup>13</sup>

Second, I do *not* assume that determination just is *grounding*, as the latter is usually construed (e.g., Fine, 2012; Schaffer, 2009)—if anything, grounding may be just one form of determination.<sup>14</sup> One reason is that grounding is taken to entail *relative metaphysical priority*: if  $x$  grounds  $y$ ,  $x$  is more *fundamental* than  $y$  (see, for example, Bennett, 2017, pp. 166–167; Schaffer, 2019, Section 4.2). Yet, we saw (Section 2.2), some forms of experiential holism may treat whole experiences and their experiential parts as being on *the same metaphysical level*: They are both experiences so that neither is metaphysically more fundamental than the other. Perhaps, some versions of experiential holism (e.g., strong holism) take whole experiences to *ground* their parts, while other versions do not. The notion of determination used here aims to remain *neutral* on this point.

### 3 | ONTOLOGICAL DEPENDENCE

Experiential holism is sometimes couched in terms of *existence*:

Phenomenal holism is the view that the experiential parts of an experience exist only in virtue of the whole existing. Each part of the whole will be a phenomenal

<sup>12</sup>For the latter is meant to be asymmetric, yet supervenience is not (Bennett & McLaughlin, 2018, Section 3.5; Schaffer, 2009, p. 364).

<sup>13</sup>More precisely: *Provided* those features of  $x$  which are determined by  $y$  do not themselves determine the very features of  $y$  by which  $y$  determines  $x$ .

<sup>14</sup>Recent controversies surrounding grounding (e.g., Barnes, 2018; Bennett, 2017; Schaffer, 2012; Skiles, 2015; Wilson, 2014) hint that one should perhaps not assume there is a univocal relation present in all instances of determination or grounding.



property instantiation; for the holist, this part exists only in virtue of the instantiation of a total experiential property. Intuitively, it is an aspect of, or abstraction from, the whole. (Lee, 2014b, p. 295)<sup>15</sup>

Following Dainton (2000, p. 186) and Lee (2014b, p. 296), I assume such ontological dependence (i) applies to *token* experiences and (ii) *all* their parts<sup>16</sup>:

**Strong ontological holism (SOH):** For any whole experience  $E$  and any temporal part  $e$  of  $E$ ,  $e$  exists only *in virtue of*  $E$ 's existence and the fact that  $e$  is part of  $E$ .

One putative rationale for this rather strong thesis might go thus.<sup>17</sup> Suppose there are reasons to think, as Wertheimer (1925/1997) thought (see Section 4), that some of an experiential part's phenomenal properties are affected by the whole experience it composes. Suppose further that experiences are individuated by their phenomenal properties at least:

**Phenomenal individuation of experience (PIE):** If experiences  $x$  and  $y$  have different phenomenal properties,  $x \neq y$ .

It should then follow that, (i) if an experiential part has some of its phenomenal properties *in virtue of* the specific whole it composes (first supposition), (ii) it would have been a distinct experience *were it not for* the whole it composes (by PIE). In which case, the thought goes, (iii) *that very experiential part with its distinctive phenomenal properties* would not exist without such a whole (SOH).<sup>18</sup>

Except that reliance on such a principle of individuation (PIE) threatens the rationale just articulated.<sup>19</sup> Note, first, that the phenomenal character of an extended whole experience  $E$  contains (or locally coincides with) the phenomenal character of its temporal part  $e$  at  $t$ : Some of  $E$ 's phenomenal properties at  $t$  just *are*  $e$ 's phenomenal properties—the phenomenal properties associated with representing a *Sol* at  $t$ , say.<sup>20</sup> This means that whole experience  $E$ , if it too is to be individuated by its phenomenal properties (PIE), trivially would not be the very experience it is without its parts and *their* phenomenal properties. And just like the application of PIE in (ii) allegedly led to (iii)  $e$ 's ontological dependence on  $E$  (SOH), it should then follow that  $E$  itself could not occur without  $e$  at  $t$ .<sup>21</sup> In other words, individuating experiences phenomenally (PIE) would lead—*modulo* slightly different starting points—to a whole experience being ontologically dependent on its parts just as much as the parts depend on the whole. Yet, determination was supposed to be *asymmetric*. Hence, the rationale for SOH sketched above fails to

<sup>15</sup>Compare Dainton on hological essentialism (Dainton, 2000, pp. 185–186).

<sup>16</sup>On ontological dependence, see Fine (1995), Lowe and Tahko (2020), Simons (1987, Chapter 8). If experiences are concrete and contingent, it is safe to assume that ontological dependence between experiences can be equivalent to the fact that one experience cannot occur without the other (see Simons, 1987, p. 295).

<sup>17</sup>A referee suggested—compare Dainton (2000, p. 184).

<sup>18</sup>Unless the phenomenal properties of the part are not determined by the *token* whole experience itself, but by its type, and would be so determined by any other whole experience of a *similar type*: In which case, the above rationale does not entail SOH. See Dainton (2000, p. 191).

<sup>19</sup>As does Leibniz's Law more generally, of which PIE is a specific consequence.

<sup>20</sup>This is not to assume that  $e$  *determines* the phenomenal properties of  $E$ —only that both *share* some phenomenal properties at  $t$ .

<sup>21</sup>See Dainton (2000, pp. 189–190).

deliver the *asymmetric ontological dependence* of an experiential part upon the whole it composes.

Importantly, SOH needs to be distinguished from a weaker version of ontological holism, according to which an experiential part cannot occur *all by itself* without composing *some* larger experience, be it the whole it actually composes or (unlike SOH) just any other whole experience:

**Weak ontological holism (WOH):** For any whole experience  $E$  and any temporal part  $e$  of  $E$ ,  $e$  exists *in virtue of* there being *some* whole experience  $E^*$  which  $e$  is a proper part of.

Temporal parts of experience, on this view, cannot occur in *complete isolation*.

This weaker version may seem easier to motivate. Neurophysiological processes take time. Accordingly, our brains may never produce lonely single experiential states, but always embedded within longer stretches of conscious experience. As Tim Bayne (2010) has it, experiences “‘enter’ consciousness ... *en masse*” (p. 244). Or one might reason (see Lee, 2014a, p. 5): (a) if the core realizers of perceptual experiences are neurophysiological processes which take time, and (b) if experiences are *identical* with their *entire core realizers* rather than with some proper part thereof, then (c) perceptual experiences should be temporally extended too. So, (d) short-lived or unextended experiential states cannot occur without being contained in longer experiences.

Evidently, temporal parts of experiences *typically* occur accompanied by other temporal parts. Whether the considerations just outlined successfully establish the modal claim that a short or unextended experiential event *could never* occur all alone is another thing. In any case, such considerations can be at home within the atomist view sketched in Section 2. If  $A1$  and  $A2$  serve to specify the *relata* of mereological composition, both are silent on the general conditions under which temporal parts of experience occur, let alone the conditions in which our brains produce them. More importantly, it is perfectly consistent with  $A3$  that a temporal part can never occur in isolation, but always within the confines of some longer succession, the properties of which it—together with other temporal parts in that succession—completely determines.

## 4 | PROPERTY DETERMINATION

Experiential holism very often focuses on the *properties* of experiences: A temporal part has some of its distinctive properties owing to the *kind* of whole experience it figures in:

**Kind holism ( $\kappa H$ ):** For some whole experience  $E$  and *some* temporal part  $e$  of  $E$ , there is some experiential property  $F$  and some type  $E^*$  instantiated by  $E$ , such that  $e$  is  $F$  only *in virtue of* being part of *some* whole of type  $E^*$ .

It matters what property  $F$  is: Though holism has something to do with the mereology of experience,  $F$  presumably cannot stand for some of  $e$ 's mereological properties—such as the property of *composing a whole experience of type  $E^*$* —on pain of rendering  $\kappa H$  trivial. More likely,



F is a phenomenal property or some intentional feature contributing to *e*'s representational content.<sup>22</sup> KH allows that *e* would still be F even if it belonged instead to any of a range of whole experiences of *a similar kind or type* ( $E^*$ ) as  $E$ —such determination need not apply to all of  $E$ 's parts either, note.<sup>23</sup> So construed, kind holism clearly contrasts with the atomist view in Section 2 since, if some temporal parts of  $E$  have some of their properties determined by  $E$ , it is unclear how  $E$ 's properties could be *entirely determined* by its parts (A3) so that  $E$  *reduces* to their succession (A2): For  $E$  must have *some* properties—those in virtue of which  $E$  determines the properties of its parts—which are not reducible to, or determined by, the properties of the parts.

Traditional reasons for KH tend to exploit various Gestalt phenomena—for instance, how the experience of a single note in a melody is determined by one's experience of the melody<sup>24</sup>:

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 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, 1925/1997, p. 5)

More recently, Ian Phillips has advanced a general argument for thinking that “the content of our experience at very short timescales is metaphysically dependent on the content of experience over longer timescales” (Phillips, 2011a, p. 810).<sup>25</sup> The argument begins with the distinction between perceptual experiences of *slow change* (as when looking at the hour hand of a clock) and those of *constant apparent change* (when seeing the second hand). One difficulty in accounting for the distinction is that a natural assumption standardly deployed in explanations of slow change seems to render experiences of constant change impossible—Phillips labels this “Fara's puzzle” (Phillips, 2011a, p. 810) after Delia Fara's influential discussion (2001). A slow-moving hour hand *does not appear to move* because, the standard assumption goes, our abilities for perceptual discrimination are limited: Small changes in location over short intervals are too small to be visually detected. The problem, Fara notes (2001, p. 926), is that exactly the same small changes in location constitute the motion of the second hand of a clock over shorter intervals. Yet, in this case, those same small changes are *quite visible*—the second-hand *looks to move constantly*. Thus:

[I]f there can be no representation of change below a certain limit, then when we perceive larger changes, we cannot perceive *all* the sub-changes that occur. Some

<sup>22</sup>One complication is whether phenomenal properties are held to be *intrinsic*—as they often are: See, for example, Dainton's (2000, pp. 191, 199, 201; 2010, pp. 115, 118–119, 127–128). Assume, as is standard (see Weatherston & Marshall, 2018), that an *intrinsic property* is one which its bearer has solely in virtue of how it is itself. If F is a phenomenal property, a consequence of KH seems to be that some phenomenal properties are not intrinsic after all, depending as they do on some other experience. Compare Grossmann (1977), p. 15).

<sup>23</sup>See Dainton (2000, pp. 185–186, 191, 199, 201; 2008, Chapter 9; 2010).

<sup>24</sup>Assuming such descriptions concern the *experience* of a melody, not just the melody itself—a common ambiguity with Gestalt considerations, as Simons (1988, p. 162) observes. For discussion of *spatial* Gestalt phenomena, see Chudnoff (2013, 2015, Chapter 5), Dainton (2000, pp. 190–207; , 2010, pp. 127–128).

<sup>25</sup>Compare Soteriou (2007, pp. 553–554; 2013, pp. 105–106, 144–146).

are simply beyond our powers of discrimination. As a result, it may seem that during the periods when such sub-changes are occurring, the hand must look still ... it may seem that the hand *cannot* look to be in constant motion. If we perceive the hand's motion as constant, then we *never* perceive the hand as stationary or unchanging, not during *any* period, no matter how small. (Phillips, 2011a, pp. 816–817)

The source of the difficulty, as he sees it, consists in the tendency of “decomposing change experience into ‘instantaneous exposures’ or ‘stages’” so that “change experience can be analysed in terms of a series of non-dynamic experiences of varying static scenes” (2011a, p. 814).<sup>26</sup> Against this, Phillips advocates postulation of a limited “temporal field”—“an upper bound to the stretches of time over which we can directly apprehend complete events and processes” (2011a, p. 817):

If we are to perceive change at all, a certain amount of change must take place within the temporal field. As a result, whether one is perceiving change over some very brief period may depend on whether the change presented over that very brief period forms part of a change across the whole temporal field which is large enough to be perceived. More generally, the idea of a temporal field highlights that whether our experience represents something as occurring over a brief period can depend on what it represents as occurring over a longer encompassing period. (Phillips, 2011a, p. 819)<sup>27</sup>

Accordingly, a temporal part of an experience of constant motion represents such motion even through the briefest interval *only because*—in line with  $\kappa_H$ —it is part of some whole experience representing a constantly moving second hand over a longer interval.<sup>28</sup>

Just like attempts to exploit Gestalt phenomena,<sup>29</sup> however, Phillips's argument ignores one relevant alternative: Namely, that what determines the content or phenomenology of some temporal part *is not the whole experience* but only some other (earlier) temporal parts.<sup>30</sup> Schematically,

**dw:** A *part* is determined by the *whole* it composes.

ought not be conflated with:

**DP:** A *part* is determined by some other *part* in the same whole.

These are clearly *distinct* theses, as the *relata* of the determination relation in DP and DW are distinct (even if they overlap).

And relations of determination between *parts* of experiences (DP) are quite amenable to the form of atomism sketched earlier (Section 2). When it comes to experiences of constant apparent motion,

<sup>26</sup>The atomist described in Section 2, notice, *need not* assume that the contents of temporal parts of an extended experience of motion represent *static* scenes only: Nothing in  $\alpha_1$ – $\alpha_2$ – $\alpha_3$  requires it.

<sup>27</sup>Phillips goes on to claim that the content of constant motion experiences “over such brief intervals” is “purely determinable” (Phillips, 2011a, p. 821).

<sup>28</sup>Phillips notes (2011a, p. 818) that his claim that the *content* of the whole determines that of its parts—when separated from the mereological structure of diachronic experiences—is available to retentionalists like Lee (2014a) or Tye (2003).

<sup>29</sup>See Chudnoff (2013, p. 564), Dainton (2000, pp. 206–207).

<sup>30</sup>As van Ehrenfels and Stumpf pointed out—the dispute between atomists and holists also took place *within* Gestalt psychology: see Ash (1998, Chapter 6), Smith (1988), and Simons (1988).

for example, an atomist of the A1-A2-A3 persuasion can steer clear of any holistic commitment: What explains how brief temporal parts of an experience of constant motion represent the second hand as *continuing to move* even during the shortest intervals owes to the influence of *earlier temporal parts*, some of which represent the second hand at visibly different successive locations (which is *not* the case with experiences of slow motion of the hour hand).<sup>31</sup> Hence, a holistic view like KH is not mandatory. True, the explanation demands an “interval of time”: the interval filled by at least two or more successive temporal parts. But this falls short of establishing that it is the *whole experience* itself, over a longer interval, which is responsible for some of the features of its parts.

One question is: why do attempts to motivate kind holism seemingly neglect DP? Could it be that DP and DW are somehow logically related—and not, therefore, genuine alternatives? At first sight, it seems dubious that DP and DW should be so related that the first entails the second. General illustrations where DP holds, but DW does not, seem readily available: Here is one, far removed from the subject-matter at hand. A novice samurai, Kuwabatake, has acquired his very distinctive sword-fighting techniques from a particular samurai master, Tsushima. His ability to perform the “eel” stroke is definitive of the kind of samurai Kuwabatake is and Tsushima is the only master teaching it.<sup>32</sup> Kuwabatake gained the opportunity to learn from Tsushima when joining the Ushitora faction. Here, a part of the faction or group (its samurai master) determines another part (the novice) and some of its properties (Kuwabatake’s samurai skills): The latter would not have those specific skills without the former—as DP has it. Yet DW does not follow: Samurais and samurai masters can switch allegiance and join rival factions, so Kuwabatake might have acquired the very same specific skills from the very same master, *albeit* within a different faction—similarly if Kuwabatake and his master had met independently, outside of any faction. There are cases, that is, where a whole may contingently serve as a *background condition facilitating* part–part determination (DP) without playing any role in determining the relevant properties of their parts (DW).

Are experiences any different in this regard? Could determination relations between experiential parts somehow already contain the seeds of holism? Only, it seems, if one already assumes that experiential atomists are not entitled to *any* relations—especially no structural or modal relations—between temporal parts of experience. It is hard to discern any solid ground behind this assumption, however.

#### 4.1 | Mere sums and structural relations

Failure to disentangle determination of a part by another (DP) from holistic determination (DW) may well go back to the widespread slogan that, for atomists, whole experiences are “mere sums of their parts”—against which holists insist that a “whole is more than the sum of its parts” (Koffka, 1935, p. 176). In this context, though, a lot hangs on what a “sum” is: If a sum just is “the *unordered* class of individual tones,” Nagel observed (1952, pp. 23–24; my emphasis), it is

<sup>31</sup>Some such determination relations could well be causal, note, and clauses (a) to (c) in Section 2.3 allow such a possibility—or *x* might determine *y* in virtue of some causal relations between *x* and *y*. Though many determination relations are entirely *non-causal*, this is no reason to rule out some *causal* relations of determination, at least not by definitional *fiat*. For one thing, if *x*’s determination of *y* is akin to a sort of *difference-maker* explaining *why y* is F (Schaffer, 2019, Section 5), causal relations may well feature a significant part in such explanations.

<sup>32</sup>Assume also, if it helps, that other samurai masters teach very similar techniques: The very fact that one is taught by Tsushima is *constitutive* of the fact that one thereby learns the “eel” stroke.

“perfectly true though trivial” that a “melody is not the sum of its individual notes” (Ibid.).<sup>33</sup> Of course, alternative conceptions of mereological sums are readily available, Nagel (1952, p. 21) went on to point out, some of which countenance sums with structurally arranged parts—as is indeed the case with the atomist commitments at issue (Section 2.2).

Structural relations like these are perfectly at home within an atomist picture whereby the parts completely determine the whole, as the inevitable analogy with a house and its bricks reveals. There is, to begin with, a manifold of spatial relations between the bricks the atomist can exploit to explain (a) how the bricks compose the house (being arranged side-by-side and on top of one another); (b) how some bricks affect other bricks (one brick supports another above it, their combined weight might cause another underneath to crack); and (c) how the house has its properties (its weight, location, width and height, the arrangement of walls and rooms, its sturdiness, etc.) in virtue of its bricks and their arrangement. The explanatory work due to this network of spatial relations is *local*, consisting essentially of spatial relations between *contiguous* bricks, in virtue of which it extends to spatially close or contiguous *groups* of bricks, such as supporting walls and pillars, and so on. As such, it remains perfectly germane to atomism in that (d) it involves *no dependence on the whole* house itself (the bricks in a retaining wall can sustain another contiguous wall even when the rest of the house has collapsed), but (e) ultimately goes back to the properties of the individual bricks (the spatial location of each brick, which grounds their spatial relations to other bricks, as well as their individual weights, internal cohesion and rigidity, etc.).

So it is, too, with temporally extended experiences and (a') the manifold of overlapping temporal relations between their temporal parts. A temporal part representing, say, a single note in a melody, may influence how the next temporal part represents the subsequent note in virtue of (b') their close succession. Likewise, (c') properties of the whole experience depend on those of the parts *and their relations*: Whether it is the phenomenology of the whole succession, or the overall content associated with it as a function of the successive contents of each temporal part, to say nothing of the duration and pace of the succession, given the temporal arrangement of the parts and *their* respective duration.

Again, such relations give nothing away to holism, being either “lateral” (DP) or “bottom up” (A3), but not “top-down” (DW). The experience of a note in a melody might “color” the subsequent experience of the next note (d') without having anything to do with the whole experience, since the whole movement both notes belong to might have been suddenly aborted midway. Instead, such relations between parts have everything to do with (e') the properties of the parts: Temporal relations between temporal parts owe to the respective location of each part, and that some temporal part affects the next goes back, presumably, to the neural mechanisms underpinning each.<sup>34</sup>

## 4.2 | Terminological matters

Some attempts to bridge the gap from DP to DW rely on relatively subtle redefinitions of some of the terms of the dispute, such as treating whole experiences as manifolds of structural and determination relations between their parts: “The word ‘whole’ may refer to a pattern of relations between certain specified kinds of objects or events” (Nagel, 1952, p. 19). On this construal, wholes can be “transposed” across different collections of parts, as when the same

<sup>33</sup>Compare Grossmann (1977, pp. 9–11).

<sup>34</sup>Thanks to an anonymous referee for prompting the discussion in this section.

melody might involve notes of different types, provided they instantiate the same structural relations:

Ehrenfels's first and still the clearest example of a Gestalt is a *melody*. In this case, the configurations are concrete tone sequences. These may be played at different tempi, on different instruments, with different dynamics, in different keys. All such variations are admissible transpositions ... But throughout the transpositions, some D-determinables keep the same values over the sequence of tones, namely the relative lengths and successive intervals (pitch proportions) of the tones. (Simons, 1987, p. 359)

Hence, the whole structure that is a melody may seem somewhat independent from, and so irreducible to, its parts, *contra* A3: The melody has a life of its own, as it were, since it can remain what it is despite significant variations in its parts. And it is this independent manifold of relations, the holist continues, which determines its parts (KH): A whole experience so construed is an “organized pattern in which each part depends upon the organization of the whole” (Koffka, 1935, p. 601).

The argument for KH might then proceed: If some experiential part is structurally related to another (or if one determines the other), this suffices to imply that (i) there is a whole experience as a result (that is what whole experiences are, by definition), and (ii) the very existence of such a whole trivially entails (again by definition) that some part has some property in virtue of the whole, as KH says. So defined, “whole experiences” guarantee that *part-part* determination (DP) collapses into *whole-part* determination (DW), since the whole just is a manifold of such determination relations between the parts.

Of course, such an argument ends up being largely terminological—relying as it does on relabeling structural and determination relations between experiential parts as “whole experiences.” As such, it threatens to trivialize the holistic explanation behind KH: So construed, KH is tantamount to saying that structural and determination relations between temporal parts of experience determine some of the properties of those parts.

As for the suggestion that wholes—reconfigured as manifolds of structural and determination relations—are *independent* from their parts, contrary to the atomist's A3, the example of “transposable” melodies establishes nothing of the sort, note. All it suggests, at best, is that the same *type*, a melody or melodic structure, can be multiply realized by different *token instances* with different parts: which is perfectly in line with the mereological reductionist's A3, just as the *multiple realizability* of mental *types* by neural *tokens of different neurophysiological types* remains entirely compatible with the physicalist view that the latter fully determine the former.<sup>35</sup>

## 5 | THE HOW AND WHEN OF HOLISTIC DETERMINATION

KH faces another difficulty: To explain how whole experiences fix some of the properties of their temporal parts, and *when* exactly? Such holistic explanations seem puzzling. Here is one way of bringing out the puzzlement.

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<sup>35</sup>If anything, talk of “admissible transpositions” hints at the *asymmetric supervenience* of the whole upon the parts, consistent with A3: Every difference between melodies entails some difference in the notes or their relations, though not every difference in the parts or their arrangement leads to a different melody.

## 5.1 | When determination occurs?

Start with the idea that determination is temporally bound as follows:

- (1)  $x$  determines  $y$  at  $t$  only if  $x$  and  $y$  have both fully occurred at  $t$ .

The underlying thought is that relations in general hold between entities that exist—exist in their entirety, that is.

Next comes a toy example: A temporally extended whole experience  $E$  occurs throughout  $t_1$  to  $t_5$  and has a temporal part  $e$  at  $t_3$ . Given this set-up:

- (2) when  $e$  occurs at  $t_3$ , only some parts of  $E$  have occurred, but not  $E$  in all its temporal extension.  
 (3) up to  $t_3$ , the whole experience  $E$  has not yet fully occurred—only some of its parts have.

From (1) and (3):

- (4) when  $e$  occurs at  $t_3$ ,  $e$  cannot yet be determined by  $E$  at  $t_3$ .

In short, it is puzzling how an experiential whole which has not yet fully occurred—some of its temporal parts still have not occurred—could determine, *as a whole*, some of its occurring temporal part.

## 5.2 | Competing wholes and overdetermination

The next step is *independent* from the first and points to there being many whole experiences around. *Assuming* kind holism, we get:

- (5) at  $t_2$ , there is a whole experience  $w$  composed of all of  $E$ 's temporal parts from  $t_1$  up to  $t_2$ , and if  $e$  being  $F$  is determined by any whole experience at  $t_3$ , it could be by  $w$  at  $t_2$ .

By Leibniz's Law:

- (6)  $w \neq E$  since  $E$  has the property of *having temporal parts occurring after  $t_2$*  and  $w$  does not.

This last step can be replicated a number of times, for any proper temporal part of  $E$ :  $w'$  from  $t_1$  to  $t_3$ ,  $w^*$  from  $t_1$  to  $t_4$ , which include  $e$  as a part. We then obtain two generalizations:

- (7) *Generalization #1*: At any time up to  $t_5$ , there is a number of overlapping yet distinct whole experiences  $w$ ,  $w'$ ,  $w^*$ , which can determine  $e$  being  $F$  at  $t_2$ ,  $t_3$ ,  $t_4$ , respectively.  
 (8) *Generalization #2*: At  $t_5$  when  $E$ 's last temporal part occurs so that  $E$  has now fully occurred,  $e$  being  $F$  can be determined by  $E$  as well as a host of other overlapping but distinct whole experiences  $w$ ,  $w'$ ,  $w^*$ .

Hence, not only is it unclear how  $E$  could even be a *candidate* for determining  $e$ , there are multiple whole experiences overlapping  $E$ , each of which suffices to determine  $e$  when it occurs—and which “screen off” determination by  $E$ , as it were.

### 5.3 | Replies

Some of the assumptions upon which the above reasoning rests can obviously be rejected or tweaked. Such responses, however, fail to reduce the theoretical costs incurred by holists:

#### 5.3.1 | *Retroactive determination*

The question is *when exactly* does the determination of a temporal part by a whole extended experience take place.<sup>36</sup> Premise (1) imposes two constraints: (i) that determination obtains at the time at which the determined  $e$  occurs (not later), and (ii) that the determining  $E$  has fully occurred (in its entirety) at the time it determines  $e$ . Obviously, these raise trouble for the holist, since  $E$  has *not fully occurred when its part  $e$  does* at  $t_3$ . Obviously, the holist will likely reject (1).

Determination in  $K_H$  is, rather, a relation holding between the longer interval from  $t_1$  to  $t_5$  (through which  $E$  occurs) and  $t_3$  (when  $e$  occurs)—from the longer interval to a shorter segment thereof. This implies that determination in  $K_H$  is (partly) *retroactive*, in the sense that it goes (in part) from  $t_4$  and  $t_5$  back to  $t_3$ .<sup>37</sup> But then another problem surfaces, as experiences seem constrained by a certain *temporal asymmetry*: The issue is not that retroactive determination is in principle problematic,<sup>38</sup> only that the *sort of holistic determination at play in  $K_H$*  clashes with a natural picture of experience.

Start with an analogy (one favored by holists)<sup>39</sup>: Whether object  $o$  moves at instant  $t$  depends on whether  $o$  changes its spatial location over some interval  $\tau$  containing  $t$ . Just *any* interval containing  $t$ ? Contrast two counterfactual situations: (a) at  $t - n$ , an obstacle could have surfaced against which  $o$  abruptly crashed so that  $o$  would be completely immobilized at  $t$ ; (b) at  $t + n$ , an obstacle could have surfaced then, against which  $o$  crashed so that  $o$  would be immobilized after  $t + n$ , but still moving at  $t$ . Such counterfactuals, if true, reveal an important *temporal asymmetry*, namely that  $o$ 's motion at  $t$  is differently affected by different segments in  $\tau$ : If (a)  $o$ 's motion at  $t$  depends on what happens *just before*  $t$ , (b) it does *not* so depend on what occurs *after*  $t$ . And counterfactuals like (a) and (b) are generally true since

<sup>36</sup>Soteriou says it is “a mistake to think that we can identify *the* perceptual representational state a subject is in by simply specifying the time *at* which it obtains and then ask after *the* content of *that* state” (2013, pp. 144–145) because “there will be many different periods of time that any instant will be part of, [such that] S was in state P from  $t_1$  to  $t_4$ , but also ... in state Q from  $t_2$  to  $t_6$ , and state R from  $t_3$  to  $t_7$ , and so on” (Ibid.). But if  $e$  overlaps different overlapping wholes, it need not be indeterminate what features (or content)  $e$  has: Why could it not have several, or a complex content? Note, in any case, that Soteriou's concern here has to do with *which* wholes determine  $e$ , not *when* such determination takes place and *how*.

<sup>37</sup>See Soteriou (2013, p. 146). Note that if holistic determination is mostly retroactive in this sense, determination between some parts (as in DP) could be retroactive too, strictly speaking.

<sup>38</sup>Fine (2012, p. 40) mentions moral consequentialism as an example where the moral value of an action performed at  $t$  is *grounded* in whether it maximizes happiness at  $t + n$ .

<sup>39</sup>Phillips (2011a, p. 823).



motion largely results from forces that make objects accelerate and move, keep them in motion or not, via interactions with other objects (or the absence thereof) and their environments. Motion, that is, is a causal matter—not the notion of *motion* itself (rate of change of location over time), but the factors by which objects move.<sup>40</sup>

Likewise with experiences. It seems one could still experience the motion of the second-hand at  $t$ —or hear a *Sol* leading into a *Mi* at  $t$ —had the remainder of the whole experience  $E$  after  $t$  failed to occur. If true, such counterfactuals suggest that those temporal parts of the whole experience  $E$  located after  $t$  play little or no role in determining one's experience  $e$  at  $t$ .

Again, there is reason to think such counterfactuals are true: Provided that *what* phenomenal or intentional features an experience  $e$  has at  $t$  is essentially a function of which neurophysiological states realize (if physicalism is true) or produce  $e$  (if dualism is). These neurophysiological states are themselves products of neurophysiological processing, the output of various neural (and essentially causal) mechanisms—variations in firing rates at specific neural locations being affected by variations at causally antecedent locations. Suppose it was possible to precisely interrupt neurophysiological processes through electrical or magnetic discharges at precise locations in the brain. Take experiential state  $e$  at  $t_3$ : Were the “zapping” to occur before  $t_3$ , the neural processes responsible for the realization or production of  $e$  would have been interrupted so that  $e$  would not have occurred. If, on the other hand, such zapping took place right after  $t_3$ , it might affect subsequent temporal parts of the whole  $E$  which  $e$  composes, though not  $e$  itself, since it would leave intact those neural processes responsible for  $e$ .

There is an apparent tension, then, between the partially retroactive determination  $\kappa\eta$  requires and this causal picture of neural processing. To deflect the tension, holists must either reject the causal picture of neural processing, or certain plausible theories regarding the relationship between neural processes and experience (be they physicalist or dualist).<sup>41</sup> If these are consequences of holism, they seem rather costly.

<sup>40</sup>Thank you to an anonymous referee for prompting this discussion. Something similar applies to Phillips' (2011b, p. 398, 2009, pp. 102-104, 152-154) appeal to the difference between *walking* and *running*, as characterized by sequences of different “phases”: Walking alternates between single-support (one foot on the ground) and double-support (both feet on the ground), whereas running is a sequence of single-support and no-support (no feet touching ground). One might then argue (as a referee did) that, if a subject  $S$  begins their motion with a single support phase at  $t$ , (i) it is “indeterminate” at  $t$  whether  $S$  is walking or running, and (ii) what “settles” whether  $S$  is walking or running at  $t$  must depend on what happens later. But (i) wrongly assumes that, if it is possible to capture the difference between walking and running *just in terms* of those different sequences of alternate phases, nothing else is going on when one runs (say): Even at the beginning of a run (with one foot on the ground),  $S$  may tilt their torso forward at a certain angle, raise their other knee higher than when walking, and the different specific muscles needed for preparing the next no-support phase contract beforehand. More importantly, *contra* (ii), the difference between walking and running is perfectly compatible with *forward determination* from earlier to later phases: It may remain indeterminate whether  $S$  is walking or running at  $t$  because  $S$  is neither walking nor running *until* either another double-support or a no-support phase occurs.

<sup>41</sup>Phillips (2009, p. 153) rejects such time-asymmetrical counterfactuals, insisting that the causal picture of neural processing behind them applies only to a “longer duration of experience” (2009, p. 154), *not* to its temporal parts. It is unclear this helps. If temporal part  $e$  of a whole extended experience  $E$  is not *causally* traceable to some neural processing  $\eta_R$  (even though  $\eta_R$  correlates with  $e$  and seems responsible for  $e$ 's features), then there are *some experiences* which are not realized or produced by neural processing. Worse, if physicalism is true in a way that  $e$  is identical to its neural realizer  $\eta_R$ , there must be some mysterious causal gap between  $\eta_R$  (itself part of neural processing) and the antecedent neural states seemingly interacting with  $\eta_R$ . Nor, in fact, can Phillips allow the causal picture of neural processing to fully apply to whole extended experiences like  $E$ , it seems: If  $E$  determines  $e$ , its doing so should itself be

### 5.3.2 | *Overlapping stages*

One might insist that overdetermination in premises (5), (7), and (8), is not *so* problematic when the distinct wholes— $w$ ,  $w'$ ,  $w^*$ —determining  $e$  at different times overlap one another as well as  $E$ . One might view such wholes as different *stages* of  $E$ 's development over time.<sup>42</sup>

But this misses the point: To repeat, the wholes determining  $e$  at different times must be distinct from one another, as we saw. That is the trouble for kind holism ( $K_H$ ): If  $e$ 's having property  $F$  can be determined by  $w$  at  $t_2$ ,  $w'$  at  $t_3$ ,  $w^*$  at  $t_4$ , it is not true that  $e$  can be  $F$  *only in virtue of being part of*  $E$ . Worse:  $w$ ,  $w'$ ,  $w^*$ , are all *proper temporal parts* of  $E$ . Which means that other *parts* of  $E$ , rather than the whole itself, might determine  $e$ —as in  $DP$ . The proposal looks indiscriminable from experiential atomism.

Advocates of  $K_H$  could dig their heels and insist that *only the entire whole experience*  $E$  over the whole interval  $T$  determines that  $e$  is  $F$  at  $t$ —nothing else (especially not  $w$ ,  $w'$ , or  $w^*$ ). Holists can say this, of course. The question is: On what ground? Are shorter whole experiences like  $w$ ,  $w'$ ,  $w^*$ , not *whole experiences* too? And so, by the lights of  $K_H$ , *precisely* the sort of thing which can determine the properties of  $e$  at  $t_3$ ?

## 6 | CONCLUSION

We are still no closer, I surmise, to understanding why temporally extended whole experiences should be “more than the sum of their parts,” or how they could determine their temporal parts, and why we should think they do. Even if, I hope, we now have a better grasp of why some holistic proposals—and some of the reasons behind them—fail to undermine the atomist's mereological reductionism. That is not to say there is no dispute to be had between experiential holism and atomism, quite the contrary. But if there is to be progress on this front, the details behind such holistic determination—what it involves, why it holds—are still very much needed.

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identical with or be brought about by some neural process  $D$ . And  $D$  could have been interrupted in a way that  $e$  occurs but not  $D$ .

<sup>42</sup>Would it help if, as a referee suggested, the holist insisted that experiences are *states* (under some conception thereof)? Not in the sense that states, because they “obtain” rather than “unfold” (Soteriou, 2010, p. 228, 2013, Chapter 2), may lack *temporal parts* (Soteriou, 2007, n. 13, 2013, pp. 41–43, 49—but see Soteriou, 2013, p. 103). After all,  $K_H$  concerns how temporally extended whole experiences determine some of the properties of *their temporal parts*—presumably, experiences must have such parts, by the holist's lights. Nor in the sense that states are “like continuants” which “endure through intervals of time” so that “if a state obtains over an interval of time  $t_1$  to  $t_n$ , then at any instant within the interval of time  $t_1$  to  $t_n$  (e.g., at  $t_2$ ) the state will have obtained already—in a sense, the obtaining of the state has already been guaranteed by  $t_2$ ”, as Soteriou proposes (2013, pp. 103–104). For this is in tension with  $K_H$  too: If an experiential state  $e$  is “already guaranteed to obtain” by  $t_2$ , then it can obtain as such *regardless* of what happens after  $t_2$ , and so need not depend upon “what state the subject is in over an interval of time” (Soteriou, 2013, p. 106). See also Stewart (2018) for discussion.

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