

# A Paradox about Phenomenal Duration

Michael Pelczar

## Abstract

My conscious experiences typically present subjective appearances of temporally extended states of affairs, but there is a limit to how brief a state of affairs can consciously appear to me. A paradox arises when we combine these alleged facts with the further alleged fact that a subjective appearance of an object traversing a continuous path must also be a subjective appearance of the object traversing the first half of that path. This essay offers a solution to this paradox. Apart from its intrinsic interest, the solution has important implications for debates in the philosophy of science about the ontological status of unobservable phenomena.

## Introduction

Consider the following claims:

- (1) I have phenomenally enduring experiences.
- (2) There is a positive lower bound on the phenomenal duration of my experiences.
- (3) If I have an experience as of some duration, I also have an experience as of half that duration.

These claims generate a paradox: each of the claims is *prima facie* plausible, but they cannot all be true together. In this essay, I set out the

considerations that make each claim plausible, explain how the claims jointly entail a contradiction, and propose a solution to the paradox.

### **Claim (1)**

Suppose you're listening to a vinyl recording of a lecture by Bertrand Russell. Due to a minor scratch on the record, there is a popping sound in the middle of one of Russell's utterances of the word "human." By "phenomenal duration," I mean a phenomenal property that your auditory experience of Russell's utterance has to a higher degree than your auditory experience of the popping sound.<sup>1</sup>

It is an open question whether phenomenal duration has any meaningful relation to objective duration (persistence over the objective time in which ordinary events take place). Maybe an experience has to extend through objective time in order to have phenomenal duration,

---

<sup>1</sup>For illustrations in other modalities, consider (a) the visual experience you have when you see a light quickly change from red to blue to red, versus (b) the visual experience you have when you see the light change from red to blue; or, (a) each of the sensations that make up a headache consisting of a series of sharp stabbing pains, versus (b) each of the sensations that make up a headache consisting of a series of deep throbbing pains; or, (a) the experience you have when witnessing a flash immediately followed by a bang, versus (b) the experience you have when perceiving the flash, or the experience you have when perceiving the bang.

maybe not; maybe an experience has to have phenomenal duration in order to extend through objective time, maybe not. But it seems beyond a reasonable doubt that human beings do have phenomenally enduring experiences.

It is also an open question whether *all* human experiences exhibit phenomenal duration. As far as I can tell, all of my experiences do. This is not to say that I never have an experience as of a durationless event. Maybe I do, for example when I see something suddenly start moving. But from the fact, if it is a fact, that I have experiences as of instantaneous events (e.g., instantaneous changes), it does not follow that I have experiences that fail to exhibit phenomenal duration. For it may be the case, and, as far as I can tell, actually is the case, that each of my experiences as of instantaneous change is *also* an experience as of the contents of some interval of time within which the instantaneous change appears to occur. The claim that I have experiences as of durationless events is compatible with claim (1), since it is compatible with the claim that each of my experiences as of a durationless event is also an experience as of a temporally extended state of affairs.

### **Claim (2)**

As the example of the Russell recording illustrates, some of our experiences have lesser phenomenal duration than others. But there is a limit to how little phenomenal duration one of my experiences can possess.

If we classify my conscious experiences into groups, each group containing all and only those of my experiences that have the same non-zero phenomenal duration as a given experience of mine, we can then put these groups in a series ordered by increasing phenomenal duration of their individual members. Claim (2) is that this series has to have a first element—a group of experiences each of which has a phenomenal duration such that I have no experience with a lesser non-zero phenomenal duration than that.

Claim (2) is extremely plausible. I can have an experience as of a state that lasts for one tenth of a second: when I view a digital stopwatch in action, I can discern the changes in numerals taking place in the tenths-of-a-second position. But there is, for me, no such thing as an experience as of a state, event, or process lasting one one-billionth of a second. If there were a digital watch that displayed time out to nanoseconds, the nanosecond position would appear to me as nothing but a blur, indistinguishable in general appearance from the blur immediately to its left.

Indeed, I cannot even *conceive* of myself as having an experience as of a nano-event. This is proved by the fact that if you ask me to conceive of myself having an experience as of an event that takes a billionth of a second, and I bother to try it, I'll do the same thing I would do if I tried to conceive of having an experience as of an event that took a millionth, or a trillionth, of a second. In the same way, if I try to conceive of having an experience as of a billion-sided regular

polygon, I'll do the same thing I would if trying to conceive of having an experience as of a million- or trillion-sided regular polygon.

Claim (2) is not to be confused with the claim that I cannot *perceive* an event lasting one nanosecond. Maybe I can. Certainly I can perceive a billion-sided polygon. But if I perceive a billion-sided polygon, it will not be by having an experience as of a figure with a billion sides. In fact, it won't be by having an experience as of a figure with any sides. It will be by having an experience as of a circle. Likewise, if, as is doubtful, I can be said to perceive a nano-event, it can only be by having an experience with a phenomenal duration roughly on the order of that of my experiences as of different states of the tenths-position of the stopwatch.

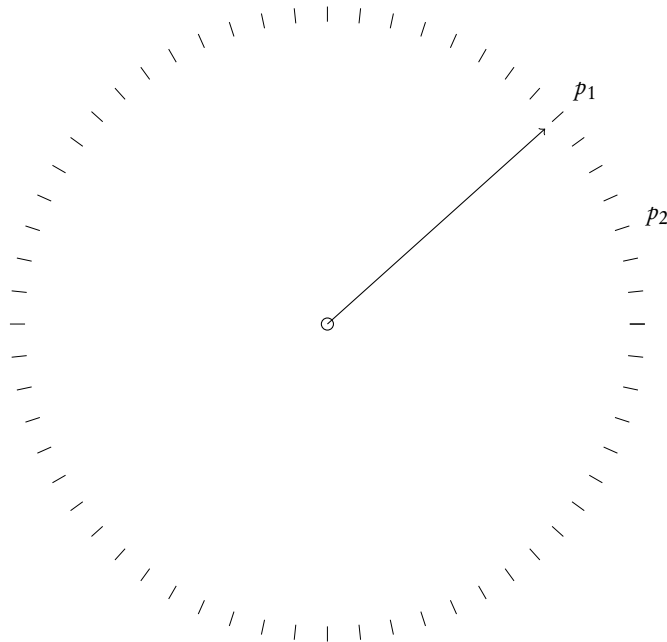
Stated roughly but succinctly, (2) is the claim that for me, nothing *looks like* a one-nanosecond event, just as for me nothing *looks like* a billion-sided polygon.

As noted above, it might be true that we have experiences as of durationless events (abrupt changes, etc). Assuming it is true, then it is also true that for every experience of mine as of some duration, I can have an experience as of some lesser duration—namely, zero duration. Claim (2) is consistent with this. All claim (2) says is that it's false that for every experience as of duration that I have, I can have an experience as of a briefer *positive* (i.e., non-zero) duration. Even if I have experiences as of durationless events, it doesn't follow, and it is not the case, that I can have an experience as of a one-nanosecond event.

### Claim (3)

An object cannot trace a continuous path from  $A$  through  $B$  to  $C$  without tracing a continuous path from  $A$  to  $B$ . Claim (3) is that something similar holds for experience: an experience as of an object moving continuously from  $A$  to  $C$  must also be an experience as of that object moving continuously from  $A$  to a point halfway between  $A$  and  $C$ .

Suppose I am watching a needle sweep smoothly around a large dial. As I watch, I see the needle's tip glide clockwise from a position  $p_1$  on the dial's rim to a position  $p_2$  about twenty degrees away from  $p_1$ ; let's say it takes around half a second for the needle to move from  $p_1$  to  $p_2$ .



My visual experience of the needle's motion is vivid and clear; the needle moves fast enough that I can apprehend its motion from  $p_1$  to  $p_2$  at a single glance, but not so fast that the needle appears blurred or otherwise distorted.

But now, if I have an experience as of the needle sweeping smoothly from  $p_1$  to  $p_2$ , mustn't my experience also be an experience as of the needle sweeping smoothly from  $p_1$  to a point halfway between  $p_1$  and  $p_2$ ? If I have no experience as of the needle sweeping smoothly from  $p_1$  to a point halfway between  $p_1$  and  $p_2$ , how am I supposed to have an experience as of the needle sweeping smoothly from  $p_1$  to  $p_2$ ? It's hard to see how I could experience the needle as moving continuously from  $p_1$  to  $p_2$  without moving through a point midway between, any more than I could experience an object as having some shape without having some size. This lends support to claim (3).

### **The contradiction**

Each of claims (1), (2), and (3) is prima facie plausible, but they are jointly contradictory. (1) says that I have experiences with subjective duration; (3) entails that if I have an experience with some subjective duration, say,  $d$ , then I also have an experience with half that subjective duration ( $d/2$ ). (3) entails further that if I have an experience with subjective duration  $d/2$ , then I also have an experience with subjective duration  $d/4$ , etc., for arbitrarily large denominator. But (2) says that I

do not have an experience with subjective duration  $d/n$  for arbitrarily large  $n$ . Hence the contradiction.

In terms of the example of the needle moving around the dial, the contradiction arises as follows. I have an experience as of the needle sweeping from  $p_1$  to  $p_2$ ; this is a confirming instance of claim (1). By claim (3), I also have an experience as of the needle sweeping from  $p_1$  to a point halfway between  $p_1$  and  $p_2$ . Also by claim (3), I have an experience as of the needle sweeping from  $p_1$  to a point one-quarter of the way between  $p_1$  and  $p_2$ , etc., through eighths, sixteenths, thirty-seconds, sixty-fourths, *ad infinitum*. In particular, by (3) I have an experience as of the needle sweeping from  $p_1$  to a point  $1/1073741824$  (i.e.,  $1/2^{30}$ ) of the way between  $p_1$  and  $p_2$ . But, by claim (2), I have no such experience. This is the paradox of phenomenal duration.

## Solving the paradox

To solve the paradox, we have to deny (at least) one of the three claims that generate it.

Against (1), someone might suggest that I never actually have a phenomenally enduring experience, but only a series of phenomenally durationless experiences. On this suggestion, what I take for an experience as of the needle sweeping from  $p_1$  to  $p_2$  is really just a sequence of phenomenally durationless experiences as of the needle pointing instantaneously to successive points along the dial from  $p_1$  to  $p_2$ . I mis-



take a sequence of phenomenally durationless experiences for a phenomenally enduring experience.<sup>2</sup>

This proposal flies in the face of introspection, which reveals to me many phenomenally enduring experiences. Phenomenal duration is as much a property of my experience as phenomenal color, or phenomenal odor, or phenomenal loudness. When I see someone inflating a bright red party balloon, my experience is as of an enduring red object; the phenomenal duration of the experience is no less real than its phenomenal color.

If you remain unconvinced, please consider the fact that an experience as of something changing (or staying the same) over some brief period of time is at least *conceivable*. But what do you conceive of when conceiving of such an experience, if not an experience just like one of the many you actually have? Maybe you'll say that you can't even conceive of a phenomenally enduring experience. If that's true, then the paradox of phenomenal duration doesn't arise for you. But it still arises for the rest of us, who not only can conceive of but actually have experiences with phenomenal duration.

Let's move on to claim (2). Someone who denies this says that I actually do have experiences with arbitrarily small phenomenal durations. The objection to this raised above was that I never introspect an experience as of a needle moving for one nanosecond. A denier of

---

<sup>2</sup>This is the view defended in (Chuard, 2011); see esp. (Chuard, 2011, 11-16).

(2) might reply that the correct conclusion to draw here is not that I don't have experiences as of nano-events, but that many of my experiences (such as various experiences as of nano-events) are immune to introspection by me.<sup>3</sup>

This reply is not convincing. As Ian Phillips remarks, "microscopes do not simply help us to notice things that we could already see." Likewise, slow-motion replay of high-speed footage of a bullet exiting a gun barrel does not simply help us to notice a one-microsecond event that we could already perceive by naked-eye observation.<sup>4</sup>

It is true, or so let's grant, that many of my experiences are not introspected by me. Normally, I take no notice of my conscious experiences, paying attention instead to what's going on around me. But someone who denies (2) must say something much stronger. He must say that among my experiences as of change are many—in fact, the vast majority—that I cannot introspect no matter how hard I try. In fact, for the reasons given earlier, he must say that the vast majority of the experiences that I have when I perceive an ordinary change (like the needle moving some distance across the dial) are experiences that I cannot even *conceive* of having, any more than I can conceive of having an experience as of a billion-sided figure.

In short, a denier of (2) must say that only a vanishingly small

---

<sup>3</sup>This is the view defended in (Graff, 2001, 927-28).

<sup>4</sup>See (Phillips, 2011, 812-13).

proportion of my experiences are such that I can form any conception of what it is like to have them. This seems like a compelling reason not to deny (2).

That leaves claim (3). This, I believe, is the claim we should reject.

Many of my experiences are experiences as of change, and many of my experiences as of change are also experiences as of briefer “sub-changes.” For example, when I see a light quickly change from white to red to blue, my experience is as of a change from white to red to blue, but also an experience as of a change from white to red. In the example of the needle moving round the dial, my experience as of the needle moving from  $p_1$  to  $p_2$  might also be an experience as of the needle moving from  $p_1$  to a point halfway between  $p_1$  and  $p_2$ , as well as an experience as of the needle moving from the latter point to  $p_2$ .

This is all consistent with (3). But, as we have seen, (3) requires us to say that *every* experience as of the needle’s motion must also be an experience as of a yet smaller and briefer motion etc. *ad infinitum*. To avoid this implication, we have to say that *an experience as of a needle moving clockwise need not be an experience as of a needle moving clockwise from one point through a second point to a third point*. More generally, we have to say that there is such a thing as an experience as of a change (or as of a staying-the-same) that is not also an experience as of a briefer change (or as of a briefer staying-the-same).

To make this plausible, we can draw on an analogy with the infamous Speckled Hen. If I look at a hen that has a single, prominent

speckle on its breast, then, barring unusual circumstances, I'll have an experience as of a one-speckled hen. If I look at a hen that sports 272 speckles, I'll have a visual experience as of a many-speckled hen, but I won't have an experience as of a hen with 272 speckles (even though what gives me the experience is a hen with that many speckles).<sup>5</sup>

What I am suggesting is that just as I can have an experience as of a many-speckled hen without there being any  $n$  such that I have an experience as of a hen with  $n$  speckles, I can have an experience as of a needle moving clockwise without there being any  $n$  such that I have an experience as of the needle occupying  $n$  points in succession, or any  $n$  such that I have an experience as of the needle moving first  $n$  degrees clockwise and then another  $n$  degrees clockwise.

Suppose that my experience as of the needle moving from  $p_1$  to  $p_2$  is also an experience as of the needle moving from  $p_1$  halfway to  $p_2$ . Suppose that it is also an experience as of the needle moving from  $p_1$  one quarter of the way toward  $p_2$ . Maybe it is even an experience as of the needle moving from  $p_1$  to a point one eighth of the way toward  $p_2$ . But it may be that my experience (as of the needle moving from  $p_1$  to  $p_2$ ) is *not* an experience as of the needle moving from  $p_1$  to a point one sixteenth of the way toward  $p_2$ . And wherever the cutoff lies, my claim is that we can correctly describe my experience as a series of phenomenally briefer experiences each of which is an experience as of

---

<sup>5</sup>For the speckled hen, see (Chisholm, 1942).

clockwise motion, but none of which is an experience as of clockwise motion from one point to another point via a third point.

It may seem strange that we can't have experiences as of nanosecond events, given that we can have experiences as of events with durations on the order of about a second, as well as experiences as of instantaneous events (sudden changes, etc). If I can have an experience as of a durationless event, and I can have an experience as of an event that lasts about a second, why can't I have an experience as of an event that lasts one nanosecond?

The answer to this is: I don't know. We just aren't built that way. Presumably there could be creatures with the capacity for having experiences as of nanosecond events; maybe such creatures have actually evolved somewhere in the universe. But a capacity for such experience is not part of our natural heritage.

The situation is not unique to the temporal aspects of our experience. I can have an experience as of a breathless edge, as when I perceive a sharp boundary between two colors. And I can have an experience as of a fat stripe, as when I perceive the French Tricolour. But I can't have an experience as of a band of color one nanometer across. I can have an experience as of silence, and I can have an experience as of a loud explosion, but I can't have an experience as of a noise with a loudness of 0.00001 micropascals.

In order to deny (3), we have to say that some of my experiences as of the needle moving clockwise are not experiences as of the needle

moving clockwise from one point through a second point to a third point. But we don't have to say that some of my experiences are experiences as of the needle moving clockwise without moving from one point through a second point to a third point. That is, we don't have to attribute to any of my experiences the phenomenal property represented by the following open sentence: ". . . is an experience as of a needle moving clockwise without moving from one point through a second point to a third point." We just have to refrain from attributing to some of my experiences as of the needle moving clockwise the property represented by: ". . . is an experience as of a needle moving from one point through a second point to a third point."

Denying (3) forces us to recognize that human experience has some rather odd phenomenal properties—properties that seem to have no possible objective analog.<sup>6</sup> But that should not come as a great surprise. Experiences as of objectively dubious states of affairs are a familiar phenomenon (think of the waterfall illusion, or the gestalt-shifts associated with viewing a Necker cube). Solving the paradox of phenomenal duration by rejecting (3) forces us to recognize that human experience is weird, but no weirder than we already had reason to believe.

---

<sup>6</sup>Though see (Spencer, 2010) for the view that an objective analog of the phenomenological chronology/geometry of human experience is, actually, conceivable.

## Conclusion

My conscious experiences typically present subjective appearances of temporally extended states of affairs, but there is a limit to how brief a state of affairs can consciously appear to me. A paradox arises when we combine these alleged facts with the further alleged fact that a subjective appearance of an object traversing a continuous path must also be a subjective appearance of the object traversing the first half of that path. I have argued that the best way to solve this paradox is by denying that a subjective appearance of an object traversing a continuous path must also be a subjective appearance of the object traversing the first half of that path. More generally, we must recognize that something can be a conscious experience as of a temporally extended state of affairs, without also being an experience as of a series of briefer states of affairs. This solution is superior to solutions that work by denying that we have phenomenally enduring experiences, and superior also to solutions that work by denying the existence of a (finite, non-zero) lower bound on the phenomenal duration of human experiences.

## References

- Chakravartty, Anjan. 2007. *A Metaphysics for Scientific Realism: Knowing the Unobservable*. Cambridge: Cambridge University Press.
- Chisholm, Roderick. 1942. The problem of the speckled hen. *Mind*, 51(204), 368–373.
- Chuard, Philippe. 2011. Temporal experiences and their parts. *Philosophers' Imprint*, 11(11), 1–28.
- Churchland, Paul. 1985. The ontological status of observables: in praise of the superempirical virtues. *Pages 35–47 of: Churchland, Paul, & Hooker, Clifford (eds), Images of Science: Essays on Realism and Empiricism*. Chicago: Chicago University Press.
- Graff, Delia. 2001. Phenomenal continua and the sorites. *Mind*, 110(440), 905–935.
- Phillips, Ian. 2011. Indiscriminability and experience of change. *Philosophical Quarterly*, 61(245), 808–827.
- Spencer, Joshua. 2010. A tale of two simples. *Philosophical Studies*, 148(2), 167–181.
- van Fraassen, Bas. 1980. *The Scientific Image*. Oxford: Oxford University Press.
- van Fraassen, Bas. 1985. Empiricism in the philosophy of science. *Pages 245–308 of: Churchland, Paul, & Hooker, Clifford (eds), Images*



*of Science: Essays on Realism and Empiricism.* Chicago: Chicago University Press.