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The epistemic objection against perdurantism

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Abstract

According to Perdurantism, persons are identical to maximal aggregates of appropriately interrelated temporal parts. Within the Perdurantist framework, an epistemic concern arises, targeting the perduring persons' belief that they are persons, suggesting that, ultimately, they are not in a position to know that they are persons as opposed to temporal parts. Despite the consideration it has received over the years, this concern has not yet been converted into a full-fledged objection. This paper aims to address this gap by exploring the possibility of formulating a coherent Epistemic Objection against Perdurantism. We shall examine several epistemological principles around which such an objection might be built, arguing that none of them, in the end, allows a plausible formulation of the objection. As a result, we shall conclude that the burden of proving that in a Perdurantist setting persons are not in a position to know that they are persons rests with the objectors.

Keywords Perdurantism · Temporal parts · Epistemic objection · Evidence · Indifference principles · Safety

1 Introduction

Perdurantism encompasses two pivotal assumptions: the assumption that persisting entities are located over an extended interval of time and the assumption that persisting entities are composed of *temporal parts* located at each instant within that

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interval. The resulting picture portrays persisting entities as *worm-shaped* entities – *perduring worms* – spanning across this extended interval of time, with a temporal part at every instant encompassed by this interval.¹

Perdurantists typically endorse *Mereological Universalism*. According to Mereological Universalism necessarily, for any collection of material entities, there is a material entity they compose.² In this plenitudinous context, the most widely accepted principle for individuating entities like persons is *maximality*: something is a perduring person iff it is an aggregate or fusion which (i) is made only of appropriately interrelated³ instantaneous temporal parts and which (ii) does not leave out any appropriately interrelated instantaneous temporal part.⁴ Thus, the Perdurantist can maintain that non-maximal fusions of appropriately interrelated instantaneous temporal parts overlapping a perduring person are not persons themselves. For example, the fusion of Caesar's instantaneous temporal parts spanning from his birth to his crossing of the Rubicon, does not meet the criterion of maximality for it leaves out some interrelated temporal parts and, therefore, is not a person.⁵ Following Johnston, we adopt the term *personites*⁶ to refer to non-maximal fusions of a person's appropriately interrelated instantaneous temporal parts. It is important to note that personites qualify as temporal parts in the strict sense, and therefore, throughout this paper, we

¹ Sider's (2001, p. 59) influential definition of *temporal part* reads as follows: 'x is a temporal part of y at time $t =_{df}$ (1) x exists at, but only at, t, (2) x is part of y at t, and (3) x overlaps at t everything that is part of y at t'.

² See Builes and Hare (2023). 'For any' here is intended to employ a tenseless quantifier: thus, from Mereological Universalism follows that, for example, all of Buckingham Palace's temporal parts, the Colosseum's current one and some of Caesar's temporal parts, taken together, compose an object—see also Longenecker (2020).

³ The nature of the relation relating temporal parts together is notoriously controversial: psychological continuity is one of the most commonly assumed, but physical continuity has also gained traction, especially in connection to Animalist theories of personal identity (see, for example, Olson (2015)). See Hudson (2001), Russo (2022) and Williams (2013) for more on the possible understandings of this relation. In this paper, we will remain neutral about its nature.

⁴ As Johnston (2016, p. 618) puts it 'of all the four-dimensional sums that there are, the ones that are persons are those all of whose constituent stages or temporal parts are interrelated by psychological continuity, and which are maximal in this respect, i.e. do not leave out any stage [i.e. instantaneous temporal part] psychologically continuous with every stage in the sum'. If, indeed, one or more interrelated temporal parts were left out, then the aggregate in question would be a proper part of a larger aggregate, and thus it would not be maximal. See Lewis (1983, p. 60).

⁵ Mereological Universalism implies the existence of various types of fusions, including maximal and non-maximal aggregates of temporal parts that are not suitably interrelated relatively to personhood. However, it's important to note that in this paper we will not deal with these other kinds of fusions.

⁶ A question about personites is whether they possess moral status. Johnston (2016, 2017) argues that temporal overlappers, particularly significantly extended personites, possess all the necessary mental and physical properties for inclusion in moral considerations. However, Perdurantism excludes them from the moral calculus, leading Johnston to advocate for its rejection. There is some connection between the subject matter of this paper—the Epistemic Objection against Perdurantism—and the moral objection articulated by Johnston, known as the *Personite Problem*. Accepting the premise that personites share their consciousness and experiences with the individuals they overlap with implies that they also share morally significant experiences, thereby *prima facie* warranting some degree of moral status. However, a comprehensive examination of Johnston's objection extends beyond the scope of this paper. It suffices to acknowledge that, even if Perdurantists successfully counter the Epistemic Objection, they must still grapple with the challenges posed by the Personite Problem.

will continue to use the term *temporal part* as a neutral way to refer to both persons' instantaneous temporal parts and personites.

A few comments on the metaphysical context where Perdurantism is commonly developed are necessary. Perdurantism is typically discussed within an *Eternalist* and *B-theoretic* setting, where past, present, and future times all exist and share equal metaphysical standing. Throughout our discussion, we will adopt this framework as the foundational context for exploring Perdurantism. However, it's worth noting that our analysis may extend to other versions of Perdurantism, such as versions that embrace Eternalism but don't strictly adhere to the B-theory, proposing distinctive metaphysical statuses for the present time, akin to a *Moving Spotlight* framework.⁷

Persons possess conscious temporal parts. For instance, Caesar is composed of a temporal part with conscious states tied to crossing the Rubicon and another temporal part with conscious states tied to being stabbed by Brutus. Additionally, a *sharing* relation exists between a person and the conscious states of her temporal parts. When a person possesses a part that has a specific conscious state at a given time *t*, that person undergoes that conscious state in relation to *t*.⁸ In a way, a person *inherits* her conscious states from her temporal parts.⁹ This grounds the assumption – which we currently endorse and which plays a crucial role in the arguments presented in this paper – that a person shares the same *phenomenal evidence* with her temporal parts (Longenecker 2020).¹⁰

There is an epistemic concern applying to Perdurantism.¹¹ Consider the belief that one is a person, a maximal fusion of appropriately interrelated temporal parts. This belief is held by both a person and her temporal parts. However, while it is true when held by the person, it is false when held by her parts. A pressing question is how this relates to the persons' knowledge that they are persons. Since the number of believers holding this belief incorrectly outnumbers the number of those holding it correctly, an intriguing thought is that such knowledge is somehow threatened. Additionally, since persons and their temporal parts share the same conscious states, there seems to be nothing in the experience of a person that could, in principle, let her detect that

⁷ See, *inter alia*, Deasy (2015) and Skow (2015). Although alternative forms of Perdurantism developed outside of an Eternalist framework have been discussed, they remain controversial; see Brogaard (2000), Tallant (2018) and Marabello (2021).

⁸ This assumption, especially in the B-theoretic context, has faced challenges. Notably, Goff (2017, pp. 266–270) argues that perduring persons in the B-theory have an unfamiliar type of consciousness. Parsons (2015) and Tullio (ms) develop and defend similar arguments.

⁹ For further discussion on this topic, see Hawthorne (2006, pp. 92–96).

¹⁰ Perdurantists face an issue here: can instantaneous temporal parts serve as bearers of ordinary conscious states? Some argue that since conscious states require extension in time, instantaneous temporal parts cannot possess consciousness. Perdurantists may address this question in multiple ways. They may assert that instantaneous temporal parts indeed have seemingly extended conscious states, or they may concede that the bearers of conscious states have brief temporal extension, as discussed by Perovic (2018) and Rimell (2018). In principle, we maintain a neutral stance on this matter. However, for the purposes of our paper, which delves into the interplay between the beliefs of persons and their temporal parts, we will operate under the assumption that instantaneous temporal parts can also be conscious and hold beliefs. This approach allows us to explore various versions of Perdurantism.

¹¹ As some have noted, e.g. Rimell (2018), this concern can be seen as an instance of the Too Many Thinkers Problem. In this paper we shall focus exclusively on Perdurantism, but it might be that some of what we shall say applies to such a general problem as well.

she is a perduring person as opposed to a mere part of it. These worries constitute the foundation of a concern applying to Perdurantism that has been raised and discussed over the years – see, among others, Merricks (2001), Olson (2002, 2007), and Zimmerman (2003). Here is Zimmerman’s way of introducing the concern:

I believe that I have been around for many years, and will probably live for many more, and that I am conscious more often than not; but, on the view now under consideration, many things wrongly think these things about themselves—such things as my present temporal part, and the sum of today’s temporal parts, and the matter making up my body right now. But if I know that the vast majority of those who see the world just as I do now are terribly deceived, how could I possibly suppose that I know which one I am? (Zimmerman, 2003, p. 502)

Perdurantists took this concern seriously and have developed several strategies to address it.¹² For example, a notable strategy to evade it is *Personal Pronoun Revisionism* – see Noonan (1998) and Kovacs (2016, 2022).¹³ However, despite the attention that this particular concern has garnered, as far as we are aware, there hasn’t been a precise formulation of it – although, as we will explore in more detail later on, some hints about how to formulate it have been occasionally offered, for example, in works by Madden (2016) and Longenecker (2020). Specifically, it remains somewhat unclear how the outlined concern can be transformed into a full-fledged objection. This paper is dedicated to investigating whether it is possible to achieve a plausible formulation of such objection.

Our starting assumption is that the *Epistemic Objection against Perdurantism* (EOP) should be modeled on the example of an analogous epistemic objection already discussed in the literature, the one against those *A-theories* of time which postulate that there are believers located at non-present times which incorrectly believe themselves to inhabit the present time.¹⁴ In summary, according to such objection, the presence of past and future entities which mistakenly believe themselves to inhabit the present time threatens our belief that we inhabit the present time. J. S. Russell (2016) and Deasy and Tallant (2022) convincingly argue that the upshot of this objection is that, in the context of some *A-theories* of time, our belief that we inhabit the present time fails to constitute knowledge.¹⁵ Our assumption here is analogous: we assume that EOP should be modeled as an objection showing that the belief of perduring persons that they are persons fails to constitute knowledge. In the next sections, we shall review several principles regulating the conditions at which beliefs constitute knowledge, considering whether those principles can serve the purpose of

¹² For more insights into these strategies, see Rimell (2018) and Longenecker (2020).

¹³ According to PPR, in a nutshell, I-thoughts, even when thought by temporal parts, always refer to the person. PPR allows to maintain that, even when held by temporal parts, the belief that one is a person true – given that the referent of such belief is the person. In such a way, the presence of incorrect I-beliefs is ruled out in a Perdurantist setting. However, PPR’s ability to dismiss the concern has been challenged – see Merricks (2001, pp. 50; 99), Zimmerman (2003, pp. 502–503) and Rimell (2018, p. 583).

¹⁴ See Bourne (2002), Braddon-Mitchell (2004), Cameron (2015), J. S. Russell (2016), Miller (2017) and Deasy & Tallant (2022).

¹⁵ However, others characterize the objection in terms of pessimistic induction, see Lam (2020).

establishing that such belief fails to constitute knowledge. We conclude that none of those principles succeeds and that ultimately EOP fails.¹⁶

2 Indifference principles

Let's start by considering an internalist *Strong Indifference Principle* (SIP):¹⁷

Strong indifference principle For all epistemically possible predicaments, $P_1 \dots P_n$, if $P_1 \dots P_n$ are subjectively indistinguishable, in the sense that they are all equally consistent with a rational agent's phenomenal evidence, then each of $P_1 \dots P_n$ ought to be assigned equal credence.

It's important to clarify how SIP can function as a principle regulating the conditions under which beliefs constitute knowledge.¹⁸ In our discussion of SIP—and others related principles which we'll introduce later on—we'll adopt the following Bridge Principle,¹⁹ which allows us to connect degrees of credence to the justification of beliefs:

Bridge principle (BP) If a rational agent ought to assign greater credence to the predicaments where she is not X than to the predicaments where she is X , then she is not justified in believing that she is X .

Since justification is typically assumed to be a necessary, though not sufficient, condition for knowledge, it follows from BP that the agent's belief of being X is not justified, and therefore, she doesn't know that she's X .

Provided that SIP is coupled with BP, one can raise a first version of EOP. First, predicaments where I am a temporal part – an instantaneous one or a personite – wrongly believing myself to be a person are subjectively indistinguishable from a predicament where I am a person correctly believing myself to be a person. Second, the predicaments where I am a temporal part vastly outnumber the predicaments where I am a person. My subjective experience, e.g. drafting a paper, is consistent with a predicament where I am identical to a person, but also with *many more* predicaments where, rather than to a person, I am either identical to an instantaneous temporal part or to one of many non-maximal personites. As a consequence, I should

¹⁶ It is important to clarify that demonstrating the failure of EOP is not equivalent to showing that the belief that one is a person constitutes knowledge. Instead, disproving EOP amounts to the task of demonstrating that no plausible argument can be constructed to conclude that the belief that one is a person fails to constitute knowledge. This latter objective can be accomplished by showing that, given a set of necessary conditions for knowledge, the belief that one is a person does not violate any of them.

¹⁷ The Indifference principles discussed here, as well as the Bridge Principle introduced below, are borrowed from Miller (2017).

¹⁸ Thanks to an anonymous referee for prompting us to clarify this point.

¹⁹ This principle stems from the plausible view that justified belief requires credence over a threshold relative to the stakes involved. See in particular Fantl and McGrath (2002, pp. 76–77) and Ross and Schroeder (2014, pp. 263–264). See also Buchak (2014, pp. 289–290).

assign greater credence to predicaments where I am not a person. In this way, my belief that I am a person fails to meet a necessary condition for constituting knowledge – such belief turns out to be unjustified.

However, SIP in this form is hardly tenable. Not only it entails that I don't know that I am a person, but also that I don't know that I have hands. As a matter of fact, SIP allows for a vast number of skeptical scenarios, e.g., traditional scenarios where I am a *brain in a vat* in the illusion that I have hands. In particular, it entails that our belief that we have hands is not justified, since the epistemically possible predicaments²⁰ where we don't have hands vastly outnumber those where we have them. Consequently, SIP does not serve as a plausible basis for advancing EOP, as it proves to be overly stringent. If SIP were to be accepted, EOP would become the least of our concerns, as much more fundamental and pressing worries would arise regarding our most basic beliefs.

An appropriately modified principle doesn't work either. Consider the following internalist *Weak Indifference Principle* (WIP):

Weak indifference principle If predicaments $P_1 \dots P_n$ are world-mates and are subjectively indistinguishable in the sense that they are all equally consistent with a rational agent's phenomenal evidence, then each of $P_1 \dots P_n$ ought to be assigned equal credence.

WIP, *prima facie*, avoids those radical skeptic scenarios which SIP cannot rule out by restricting possible predicaments to the same world. However, at closer look, WIP turns out to be way stronger than it should be.

While it does exclude non-actual skeptical scenarios, it permits actual ones. For instance, WIP implies that I should assign equal credence to a scenario where I have hands and to a series of scenarios where I am a brain in a vat *in the actual world* holding the same belief falsely. The possibility of skeptical scenarios being actual is not unlikely. Some cosmological theories predict the possibility of such scenarios, like those involving *Boltzmann Brains*. As noted by Cameron:

Some popular cosmological theories predict that the future will contain Boltzmann brains: self-aware entities that arise out of random fluctuations from a state of chaos. Indeed, they predict that the number of Boltzmann brains throughout history will vastly outnumber the number of “normal” observers. Some of those Boltzmann brains will be having experiences that are subjectively indistinguishable from my own. These are future states, so world-mates with our own actual experiences. By the weak indifference principle, then, I should give just as much credence to each Boltzmann brain scenario as I give to the scenario in which I am an ordinary brain having veridical experiences. (Cameron, 2015, p. 812)

²⁰ As Miller (2017, p. 783) notes, it wouldn't help to restrict the principle to merely possible predicaments, since predicaments where we don't have hands would still outnumber those where we have them. As argued in greater detail below, a further restriction to world-mates predicaments wouldn't work either.

As it turns out, WIP entails that the scenarios predicted by certain cosmological theories can threaten our most basic beliefs. This can be easily seen as a reason for rejecting WIP, for the sake of endorsing principles which can be coupled with cosmological theories without producing similar unfortunate epistemological consequences.²¹

Moreover, WIP still allows for predicaments involving holograms, illusions, and hallucinations, all subjectively indistinguishable to an agent. Consequently, it implies that we are in the same boat as believers subject to illusions, e.g. believers who possess phenomenal evidence that they have hands without actually having hands due to hallucination.²²

As a result, WIP is not better than SIP with respect to avoiding skeptical scenarios and, for these reasons, can hardly serve the purpose of phrasing EOP.

At this point, friends of EOP might argue that SIP and WIP, while not universally applicable to all beliefs, do apply to the belief that one is a person as opposed to a part. Specifically, they might contend that beliefs such as ‘I am a person’ or ‘I have hands’ constitute a distinctive category of *de se* beliefs. These beliefs pertain not only to a particular individual but also to the kind of subject one identifies with, along with the type of experiences typically associated with that very same kind of subject.

For example, by adopting, along with SIP or WIP, a version of the *Relevance Limiting Thesis* (RLT) for *subject-concerning de se* propositions,²³ objectors can limit the relevant evidence for such beliefs while in principle allowing for the existence of a kind of evidence other than the phenomenal one which might serve to the purpose of evaluating other categories of beliefs—*non-phenomenal* evidence.²⁴

Relevance limiting thesis (RLT) for a subject-concerning *de se* proposition P , if a rational agent’s total phenomenal evidence is U , then their credence in P should be $Cr(P|U)$, where Cr is their prior credence function.

This move can be supported by the idea that, in the case of this kind of *de se* beliefs, phenomenal evidence is the *only* relevant kind of evidence as it’s the only kind which believers first-personally access.²⁵

This strategy, however, is hardly tenable. The restriction of indifference principles to the kind of belief at stake in EOP via the adoption of RLT,²⁶ besides being

²¹ Principles appealing to *non-phenomenal evidence*, like the ones discussed below, can serve to this purpose.

²² Thanks to Lee Walters for pressing this point.

²³ See, *inter alia*, Meacham (2008), Briggs (2010) and Builes (2020) for defences of RLT. The version we present here is mostly inspired by Builes (2020).

²⁴ A more detailed gloss on non-phenomenal evidence is provided in the next section.

²⁵ As Schellenberg (2016, p. 880) notes, non-phenomenal evidence is possessed by agents *unbeknownst* to them. We elaborate on this point in the scenario presented at the beginning of the next section.

²⁶ Moreover, an additional problem is that, by adopting RLT, it turns out that a brain in a vat holding the subject-concerning *de se* belief that one has hands cannot update its credence even if somehow it came to learn that its hands are virtual: we could imagine for example that an evil scientist programs the envatted brain so that it has non-phenomenal evidence that its hands are virtual and eventually forms such belief—see Magidor (2018) for a discussion of whether envatted agents can know to be such.

controversial,²⁷ seems merely intended to phrase the objection, and thus, in the present context, *ad hoc*. Furthermore, even granting this move, Perdurantists would still be in a position to reject the train of thought of this version of EOP. In particular, Perdurantists might contend that our belief that we are persons, together with other beliefs like the belief that one has hands, should be evaluated on the grounds of principles which are sensible to kinds of evidence other than the mere phenomenal one. Since WIP and SIP, no matter if coupled with RLT, are exclusively sensible to phenomenal evidence, Perdurantists might simply reject any version of EOP based on them. Therefore, the burden of proof would still rest with those objecting to Perdurantism, as they would need to provide an argument that incorporates non-phenomenal evidence into their formulation of EOP.

As a result, a question arises as to whether a version of EOP can be successfully developed by appealing to non-phenomenal evidence. The appeal to phenomenal evidence in SIP and WIP is justified by the insistence occasionally put forth by the proponents of the objection that a person shares the same experiences as her temporal parts—see Zimmerman’s quotation above. However, despite how the objection has sometimes been introduced by its proponents, the possibility of formulating EOP by appealing to non-phenomenal evidence is viable; we explore it below.

3 Non-phenomenal evidence

Let’s begin with a gloss on non-phenomenal evidence. The key insight about non-phenomenal evidence is that the evidence used to evaluate beliefs goes beyond the purely phenomenal realm. It is not limited to what it feels like to be a certain subject; it also encompasses the interaction between an agent’s cognitive capacities and the environment. This type of evidence can be individuated by the specific token content of the agent’s experience that results from the utilization – *successful* in a *good* case, *defective* in a *bad* one – of these capacities within a particular environment.²⁸

This understanding of evidence allows us to distinguish between ordinary believers and beings in a simulated environment – e.g. brains in a vat. While an ordinary, non-envatted agent genuinely experiences sensations like feeling their own hands, a brain in a vat only appears to experience such sensations. As pointed out by J. S. Russell, this distinction is critical in understanding the role of non-phenomenal evidence: ‘The difference between feeling hands and merely seeming to feel hands is not a difference just in “what it is like” for either of them: it is partly a matter of having hands’ (2016, p. 155). The question we must address now is whether persons and their temporal parts share the same non-phenomenal evidence.

To make the picture clearer, consider two subjectively indistinguishable predicaments in which two duplicate agents, John and Bill, both perceive their phone vibrating in their pocket. Based on the same phenomenal evidence, both form the belief that someone is calling them. However, while John’s belief is true since it is true that he is receiving a call, Bill’s turns out to be false since he only felt as if his phone was

²⁷ See Titelbaum (2008) for arguments against RLT.

²⁸ Schellenberg (2016, p. 879), as well as Schellenberg (2017, pp. 77–79).

vibrating in his pocket but in the end no one is calling him.²⁹ While John and Bill's bodies of phenomenal evidence are equivalent, their beliefs' bases are not since John has different non-phenomenal evidence than Bill: their experiences have the same type of phenomenal content, but differ in their non-phenomenal content just like in the experiences of a human person who has hands and an envatted agent who has virtual hands, even if the perceptual capacities employed in forming their beliefs are the same. Consequently, their respective beliefs bases will differ in their non-phenomenal aspects.

A *Non-Phenomenal Indifference Principle* (NPIP) reads as follows:

Non-phenomenal indifference principle For all epistemically possible predicaments, if $P_1...P_n$ are indistinguishable, in the sense that they are all equally consistent with a rational agent's phenomenal and non-phenomenal evidence, then each of $P_1...P_n$ ought to be assigned equal credence.

Our question is how NPIP relates to persons and their temporal parts. Do they share the same non-phenomenal evidence? A version of EOP can be built around NPIP if they do share such evidence.³⁰ However, as we will argue below, they don't.

There is a *split* in the non-phenomenal evidence held by persons and their parts, resulting from their underlying metaphysical nature. The temporal location had by persons is, in principle, different from that had by their instantaneous temporal parts, as the latter are located at an instant instead of an interval of time. The temporal location had by persons is also different from the location had by personites, as personites are located at an interval of time which is occupied by a non-maximal aggregate of appropriately interrelated instantaneous temporal parts. This split in the metaphysical nature of persons and temporal parts corresponds to a split in their non-phenomenal evidence, particularly regarding their temporal location and so their *environment*.

It's crucial to emphasize that this split in temporal location carries significant implications. Let's examine the concept of *lifetime*. In a broad sense, we commonly conceive an *ordinary lifetime* as a continuous interval spanning from birth to death. The definition of birth and death varies based on one's perspective on the nature of personal identity. Animalist theories may identify a person's birth and death with biological events, while Psychological theories may link them to events different from biological birth and death, such as the acquisition and loss of certain psychological features. The characterization of the notion of lifetime depends on the specific stance on personal identity, and we will remain neutral on this matter in our discussion.

In a Perdurantist context, for an entity to have an ordinary lifetime, it must be located at a continuous interval which is occupied by a maximal aggregate of appropriately interrelated temporal parts.³¹ This is because only such a maximal aggregate

²⁹ Deb (2015) provides a systematic review that explores the phenomenon known as the *Phantom Vibration Syndrome*, which serves as the foundation for the scenario discussed.

³⁰ In particular, by using the Bridge Principle introduced above and claiming that if persons share the same non-phenomenal evidence with their temporal parts, then their belief that they are persons turns out to be unjustified.

³¹ It's worth noting that 'having an ordinary lifetime' is not coextensive with 'being a perduring person'. There are perduring entities that possess an ordinary lifetime but are not persons; for example, animals

is composed of (i) a temporal part that is born and a temporal part that dies, and (ii) each and every temporal part located between these two. Persons, since they are identified with maximal aggregates of this sort, have non-phenomenal evidence of having such a location, and consequently, persons have non-phenomenal evidence for having an ordinary lifetime. On the other hand, temporal parts, since they are either identified with instantaneous temporal parts or with personites, don't have non-phenomenal evidence that they have an ordinary lifetime. Rather, they have non-phenomenal evidence that they have a non-ordinary lifetime, specifically a lifetime that either (i) lacks birth and death or (ii) contains birth and death but fails to progress continuously from one to the other.³²

These considerations are intriguingly applicable to both instantaneous temporal parts and significantly extended personites. Take the example of a person like Caesar, associated with an ordinary lifetime extending continuously from 100 BC to 44 BC. Now, consider a personite, Caesar-minus, composed of all of Caesar's temporal parts except for a single instantaneous one. This excluded temporal part could represent (i) Caesar's birth, (ii) Caesar's death, or (iii) a time in Caesar's life unrelated to his birth or death. In each scenario, since it lacks a continuous path from birth to death, Caesar-minus lacks an ordinary lifetime. Notably, significantly extended personites, irrespective of their vast extension, and instantaneous temporal parts of persons share a similarity in lacking non-phenomenal evidence for having an ordinary lifetime.

This dialectic is not entirely novel. Madden (2016) delves into a comparable distinction between phenomenal and non-phenomenal evidence to tackle epistemic apprehensions linked to synchronic aggregates of parts. These concerns revolve around whether we are identical to a maximal aggregate of such parts or to one of its proper parts. However, Madden contends that this distinction does not wholly resolve the concerns, stating:

The [non-phenomenal] evidence that one has hands would allow one to discriminate one's case from every case of a handless overrapper, such as an undetached head. But there are many overlappers which do in fact have hands, lacking instead some other peripheral parts (the "complement" of my left leg,

fit this description as they have a continuous path from birth to death—of course, the similarity between persons and animals in terms of having an ordinary lifetime does not undermine our belief that we are persons rather than animals, as there are other phenomenal as well as non-phenomenal evidential differences between the two that secure our belief that we are persons as opposed to animals. Given this, the property of having an ordinary lifetime is particularly useful as it is (i) a property general enough such that it doesn't pertain only to persons and (ii) distinctive enough for marking a difference in the non-phenomenal evidence had by persons and temporal parts. Additionally, the notion of lifetime enables a clear distinction between the current case and analogous cases in the context of spatial aggregates. Further elaboration on this latter point is provided below while discussing Madden's (2016) argument. We are grateful to an anonymous referee for pressing us to elaborate on these points.

³² There is a question about whether birth and death are events that have temporal extension or not. If they are, then our claim should be interpreted as the claim that no temporal part (instantaneous or personite) has either (i) a continuous path from birth to death or (ii) events of birth and death that comprise *all* their relevant parts. For example, some personites may have an event similar to death where there is a gap between the beginning of a death and its end, e.g. a missing temporal part in the process of a stroke. This accounts for the fact that temporal parts have a non-ordinary lifetime since an ordinary lifetime contains events of birth and death that comprise all their parts. For simplicity, in the main text, we omit this complication.

for example). The [non-phenomenal] evidence that one has hands, then, is not by itself a sufficient basis to discriminate oneself from these subjects (Madden, 2016, p. 196).

While Madden's critique holds for synchronic aggregates, we argue it doesn't apply to Perdurantism. In synchronic cases, non-phenomenal evidence may be distributed across overlappers, blurring the distinction between a maximal spatially extended entity and its overlappers. However, this contrasts with the temporal case central to Perdurantism. As previously emphasized, certain aspects of non-phenomenal evidence, such as having an ordinary lifetime, are inherently lacking in temporal parts. Therefore, even if a person shares a substantial body of non-phenomenal evidence with her parts, particularly with significantly extended personites, it never possesses the *same* evidence.

Furthermore, the argument that persons and their parts share the same evidence can be seen as an instance of what Lowe (2002) characterizes as a *Cinematographic fallacy*. Lowe introduces the cinematographic fallacy to support *Constitutionalism*. Opponents of Constitutionalism argue that if two objects, like a statue and a lump of bronze, coincide at a particular time t , then they are the same object, which contradicts the stance of Constitutionalists. However, Lowe rebuts this by emphasizing that solely examining a single time is insufficient to establish whether two overlapping objects are one object. To comprehend their persistence conditions and identity, it is essential to consider their history, considering the other times at which they exist. In the case of a statue and a lump of bronze, even if there are times when they share identical particles, an examination of other times can reveal that they differ. Applying Lowe's argument to our discussion, determining the comprehensive epistemic positions of two overlappers, like a person and one of her personites, cannot rely solely on one or a few shared temporal parts. This determination also relies on 'how the world is at [other] times' (Lowe, 2002, p. 371). Consequently, it is necessary to consider their respective lifetimes to assess their epistemic positions and identify potential disparities in evidence.

An objection³³ to the presented reasoning contends that the divergence in non-phenomenal evidence between persons and their temporal parts over time is irrelevant.³⁴ The argument suggests that, when evaluating the belief that one is a person,

³³ Thanks to Luke Elson for suggesting this objection.

³⁴ Another concern about the line of reasoning developed in the present section is that our usage of non-phenomenal evidence might be exceedingly broad. Consider the following case. John is a perduring person who has a lifetime of 100 years. At a point, say when John is 40, John holds the belief that he will live to be 100 years old. Obviously, at least as far as ordinary circumstances are concerned, we wouldn't take John's belief to constitute knowledge. However, it may be suspected that the strategy we have been defending in the main text fails to account for this. Given his body of non-phenomenal evidence and NPIP, John should assign higher credence to a predicament where he lives to be 100 as opposed to other predicaments. Consequently, one may think that John's belief meets all the requirements for justification. We believe that this result, while potentially baffling at first glance, does not threaten our position. Even in our setup, there is a clear sense in which John cannot know, at the age of 40, that he will live to be 100: the truth and the justification of a belief are not sufficient conditions for knowledge. The case at stake is analogous to those cases that show that truth and justification are not sufficient for a belief to constitute knowledge – Gettier cases (Gettier, 1963). Following a well-established trend, the friends of our setup need to claim that there

the crucial consideration is the evidence available to persons and their temporal parts *at a specific time*, potentially an instant or a brief interval, certainly a period shorter than a lifetime. The objection insists that assessing such a belief based on the non-phenomenal evidence spanning an entire lifetime is unjustified. It maintains that the pertinent non-phenomenal evidence for persons and their temporal parts at a given time is identical, forming the basis for constructing EOP.

We ultimately find this objection unconvincing. First, we are not persuaded that conceding that persons and their temporal parts have the same non-phenomenal evidence at a given time implies that the only relevant evidence for evaluating the belief that one is a person is evidence limited to that specific time. The mere occurrence of belief formation at a time not corresponding to an entire lifetime does not dictate that the relevant evidence for assessing such belief must align precisely with the temporal scope of the belief-forming process.

Consider a spatial analogy. Imagine that Sarah, an agent living in the actual world, sees a road sign indicating that Houston is 100 miles away from her location. Now, also envision Julia, an agent living in a possible world where Houston does not exist, seeing an identical road sign falsely indicating that Houston is 100 miles away from her location. Both Sarah and Julia develop the belief that Houston is 100 miles away, but while Sarah's belief is true, Julia's belief is false. It might be argued that, relative to their location, Sarah and Julia have the same non-phenomenal evidence – the worlds they live in are entirely alike, yet we would want to distinguish between Sarah and Julia, likely asserting that Sarah's beliefs are epistemically better positioned than Julia's. To make this distinction, a natural approach is to consider a broader body of non-phenomenal evidence, such as evidence that one lives in a world that includes Houston, in Sarah's case. This serves as an example of a belief formed at a limited spatial location but assessed by considering a body of non-phenomenal evidence larger than that available at the specific spatial location. It remains unclear to us why, in the presence of analogies like this, the same procedure should not be applied to the case of Perdurantism, by considering a body of non-phenomenal evidence larger than the one available at a specific temporal location.

In our first rejoinder, for the sake of argument, we conceded that a person and a temporal part share the same non-phenomenal evidence at a given time. However, we find this implausible, and this leads to our second point. The non-phenomenal evidence in question pertains to having an ordinary lifetime, which, in turn, traces back to having a location including a maximal aggregate of appropriately related parts.

Now, the fact that a person is a specific maximal aggregate of appropriately inter-related temporal parts tenselessly obtains. For instance, it is tenselessly the case that Caesar is such a maximal aggregate which includes a temporal part that gets stabbed

is some condition for knowledge, additional to truth and justification, that the belief at stake doesn't meet. A natural candidate, for example, is a Safety condition (an examination of Safety is provided in Sect. 4 below). By adopting Safety, we can claim that John's belief is not safe, since it's not difficult to imagine that there's a possible world close to the actual one where John, instead of living to 100, dies earlier, say at 70. Our setup is thereby capable of handling beliefs of the sort of John's. Interestingly, the belief that one is a person exhibits a different behavior with respect to Safety. As we argue in Sect. 4, there are strong reasons for thinking that such belief is safe. We are grateful to an anonymous referee for giving us the opportunity to clarify this point.

by Brutus. A reflection of this is that it is always true that a person is a specific maximal aggregate of appropriately related instantaneous temporal parts.³⁵ For instance, even now in 2024, it is true that Caesar is a maximal aggregate of temporal parts including one that gets stabbed by Brutus. Analogously, it is always true that a specific temporal part of Caesar, such as a personite that fails to include a part that gets stabbed by Brutus, is a non-maximal aggregate of temporal parts. Even now, in 2024, it is true that such a personite is such a non-maximal aggregate of parts. These are uncontroversial reflections of the core commitments of Perdurantism: the mereological composition of persons and temporal parts is not subject to any temporal variation.³⁶ A consequence of this is that, at every time, and so also at a given specific time, persons and their temporal parts have different bodies of non-phenomenal evidence. Suppose that at time t the belief that one is a person is formed both by a person and one of her temporal parts. Given what we have just observed, at t , it is true both (i) that the person at stake has an ordinary lifetime and (ii) that the temporal part at stake does not have an ordinary lifetime. As a consequence, the person and the part at stake have different bodies of non-phenomenal evidence. Even when the evidence taken into consideration is confined to the evidence possessed at a given time, there is a clear split in the evidence that persons and temporal parts have.

As it turns out, NPIP is no better situated than SIP and WIP. NPIP results in an unequal assignment of credence to a situation where we are temporal parts and one where we are persons. In fact, a situation where we are persons deserves a higher level of credence, given that, by contrast to one where we are temporal parts, it is compatible with our non-phenomenal evidence.

4 Safety

At this juncture, the objectors are confronted with a situation where EOP can be formulated neither by appealing to the sharing of the same phenomenal evidence, as such sharing is not relevant, nor by appealing to the sharing of the same non-phenomenal evidence because there is no full sharing of such evidence. The remaining option is to argue that although a person's temporal parts don't share her same non-phenomenal evidence, they still somehow threaten her beliefs, perhaps due to the similarities in

³⁵ This follows from a plausible principle that links the tenselessness of some facts to the eternal truth of propositions about these facts. This principle is well accepted in temporal metaphysics. For example, the B-theory of time holds that all facts are tenseless and thereby supports Propositional Eternalism, the view that each proposition, if true, is always true. But this applies to other theories as well. For example, the Moving Spotlight theory posits that, fundamentally speaking, all facts are tenseless with the exception of facts about what time instantiates the property of presentness. As a consequence, this view maintains both that some propositions are eternally true (most notably, propositions about what exists) and that some other propositions (propositions about what time is the present) are temporarily true (that is, sometimes true and sometimes not true). For more on the relation between Propositional Eternalism and the B- and A-theories of time, see, *inter alia*, Bacon (2018) and Deasy (2021).

³⁶ And indeed, as noted already, views that posit the temporary existence of past and future things, such as Presentism, are not trivially reconciled with Perdurantism.

their environments.³⁷ A distinctively attractive way to further develop this strategy is by appealing to an externalist principle for knowledge, *Safety*:³⁸

Safety If one knows that P , then necessarily there are no close possible predicaments in which one believes P and P is false.³⁹

Safety is designed to capture the concept that beliefs qualify as knowledge only if they couldn't easily have been false, as articulated by Williamson: 'If one knows, one could not easily have been wrong in a similar case' (2000, p. 147). Safety, in this context, enables the dismissal of skeptical scenarios because these scenarios are not considered *close* in a relevant sense. The notion of *closeness*, following J. S. Russell (2016), can be elucidated as follows:

The idea is that a close belief has a sufficiently similar basis to yours. This is rough, and it may well be impossible to elucidate closeness without eventually appealing back to knowledge. But we can still make good judgments in lots of cases. 'Basis' is used in an extended sense: a belief's basis isn't generally 'in the head'. Possible believers in situations with importantly different environments, or causal laws, or underlying metaphysics, typically don't count as close. (J. S. Russell 2016, p. 156)

EOP can be formulated by (i) adopting the Safety principle and (ii) asserting the closeness of persons and their temporal parts. A *prima facie* attractive line of argument supporting (ii) relies on the idea that persons and temporal parts are embedded in an environment that establishes their closeness. Longenecker (2020) provides an exemplar instance of this reasoning:⁴⁰

³⁷ As we shall see below, while not fully explored and developed, this strategy has been considered and defended in the literature, most notably by Longenecker (2020).

³⁸ Other candidate externalist principles seem less promising, with *Reliabilism* being one example. This principle asserts that *justified* beliefs stem from reliable cognitive processes that tend to produce true beliefs, considering both the environment and the agent's historical usage of the processes in question for justification. Justificational Reliabilism, the most popular version, argues that justification is necessary but insufficient for knowledge—see Goldman and Beddor (2021). The process guiding persons and temporal parts to the belief that they are persons is not intuitively clear, but they likely employ a set of processes, both experiential and inferential. A Reliabilist EOP must demonstrate that the person's belief that she is a person is justified but doesn't constitute knowledge due to the unreliable environment. It needs to show that there are, in fact, temporal parts that arrive at the same belief with the *same process* and are, however, wrong. However, our immediate response, as argued extensively in this paper, is that temporal parts and persons don't entirely share the same environment. While overlapping with the ordinary lifetime of persons, temporal parts have a different kind of temporal location, which does not include birth and death or is not continuous, and so their overall environment is distinct. The situation of temporal parts is analogous to that of ordinary agents transitioning to simulated environments and becoming unreliable—see Altschul (2011) for these scenarios. The environment of temporal parts, a non-ordinary lifetime, renders the set of processes reliable for persons unreliable when employed by temporal parts in their belief-forming process, just as it happens to those agents that become envatted.

³⁹ Philosophers disagree on whether Safety is sufficient or merely necessary for knowledge. We remain neutral on this. Our goal here is only to show that EOP fails to be formulated around the adoption of a necessary or sufficient Safety Principle.

⁴⁰ Madden (2016, p. 188) makes the same point with respect to synchronic aggregates.

[...] External factors [...] could be used to explain how we know that we aren't brains in vats despite the fact that such brains could have phenomenologically identical experiences to us. But the case of [temporal parts] is very different, since not only do persons and their corresponding [temporal parts] share the exact same mind, but they also share the exact same environment. In fact, other than a difference in persistence conditions and identity, they have everything else in common. And it seems that the slight difference that exists between them is too frail of a reed to satisfactorily explain how the person, but not the [temporal parts], knows that they are a person. (Longenecker 2020, p. 2569)

In light of this, a Safety-based version of EOP may initially seem more viable and promising than the formulations considered so far. However, Perdurantists have compelling arguments for rejecting a version of EOP built around Safety. These arguments refute the idea that persons and their temporal parts could be close believers.⁴¹

Longenecker's claim that persons share everything with their temporal parts, except identity and persistence conditions, can be rejected. As seen above, persons and their temporal parts don't share the same kind of lifetime: while persons have an ordinary lifetime, temporal parts, whether instantaneous or significantly extended personites, don't. Temporal parts lack a continuous path from birth to death. This additional difference plays a role with respect to closeness.

Firstly, it undermines Longenecker's claim that persons and their temporal parts share the exact same environment: if the notion of lifetime is included in the broad ideas of environment—and so it seems, since lifetimes are not 'in the head' of believers—and of temporal location, this turns out to be false.

Secondly, and more importantly, the lifetime split allows for pressing an analogy between the cases of persons and personites, and skeptical scenarios. Skeptical scenarios have what might be classified as beliefs in Moorean truths as targets, for example, the belief that one has hands. Now, consider the belief that one has an ordinary lifetime. This belief involves two truths: firstly, the fact that our lifetime includes a birth and a death, and secondly, the fact that we persist from one to the other continuously. Perdurantists might reasonably argue that beliefs involving such truths are Moorean. If we accept them, these considerations introduce *principled reasons* to question the closeness of persons and temporal parts. Safety is about ensuring the security of our beliefs in Moorean truths—see Sosa (1999). Perdurantists may contend that, in order to secure beliefs of Moorean truths concerning our possession of an ordinary lifetime from a skeptical challenge, the split in lifetimes should be given more weight than sharing a similar environment when it comes to assess the closeness of persons and parts.⁴²

The intimacy between the epistemic challenge against Perdurantism and skeptical scenarios can be further motivated by considering scenarios inspired by B. Russell's (1921) *Five-minute hypothesis*, famously concerned with the possibility that

⁴¹ We believe this introduces a further disanalogy between EOP and the aforementioned epistemic objection against A-theories, as defenders of the latter cannot—at least not as easily—appeal to the 'distance' between present and non-present believers. See, *inter alia*, J. S. Russell (2016).

⁴² Thanks to Giuliano Torrenco for helpful suggestions on this point.

the world, rather than having a long cosmological history, is only five minutes old. B. Russell's core upshot is that the evidence we have is compatible with this scenario; for instance, the body of evidence allowing us to conclude that our world has a long cosmological history might have been brought into existence five minutes ago. It is worth noting that this scenario embeds something very close to (i) having a shorter lifetime than the one we think we have and (ii) not being born. If the world has been created five minutes ago, then, rather than having been born and having had a possibly long life after it, entities like us just appeared, starting to be located in time – indeed, at the very first time. Rejecting B. Russell's scenario is certainly a goal that epistemological principles are expected to achieve, for this scenario is as repugnant as a brain-in-a-vat one. Perdurantists might claim that, as long as one accepts that this scenario has to be rejected, for example, via the rejection of the closeness of a B. Russell's 'Five-minute world' scenario from ours, then the same should be the case for a scenario where we are short-lived temporal parts with a deviant lifetime as opposed to persons with an ordinary lifetime. After all, they might argue, the scenario pushed by friends of EOP is a mere, and no less repugnant, variation on B. Russell's original 'Five-minute world' one.

This line of argument may meet resistance. It can be insisted that in a Perdurantist setting temporal parts are entities which inhabit the *actual* world and that this draws a line between the case at stake and B. Russell's scenario. It can be argued that, while we have reasons to build an epistemology which eludes the threats of B. Russell's scenario, the same doesn't go for the case of persons' temporal parts. Moreover, it may be insisted that, since temporal parts with incorrect beliefs about their lifetime are actual entities, considering the belief that one has an ordinary lifetime as Moorean is not convincingly justified.

We find these contentions to be misplaced. As seen in Sect. 2, there exist instances of possibly *actual* scenarios which, in principle, may be suspected to threaten our knowledge, such as the Boltzmann Brains hypothesis examined by Cameron. The standard way of coping with scenarios of this sort is the same as that which applies to more exotic scenarios, like the one developed by B. Russell. The way is developing epistemological frameworks showing that our knowledge is preserved notwithstanding these scenarios, e.g., by arguing that a world where I am a Boltzmann Brain is not close to a world where I am a person. This fact is crucial in two respects. Firstly, given the existence of actual scenarios of this sort, it remains unclear why the mere actuality of persons' temporal parts should undermine the analogy in question. It can be thought that the case of temporal parts has to be handled in the same way as the Boltzmann Brains hypothesis, and so *a fortiori* in the same way as B. Russell's scenario: as a scenario that, despite being actual and *prima facie* threatening our knowledge, does not ultimately impinge on it. This is a mere reflection of the fact that there are good, principled reasons for modeling epistemological frameworks in such a way as to elude the threats of actual and non-actual scenarios that have some basic piece of our knowledge as their target. Secondly, the actuality of scenarios of this sort secures the point about Moorean truths. The truth of our belief that we have hands is plausibly Moorean, and yet is in principle threatened by actual scenarios like the Boltzmann Brains hypothesis. If it is assumed that, Boltzmann Brains notwithstanding, our belief that we have hands is Moorean, it is hard to see why the same

rationale should not apply to the beliefs threatened by the actual presence of temporal parts. Since we think that assuming that our belief that we have hands is Moorean is a natural and legitimate approach, we expect the same to apply to the case of temporal parts.

Determining what qualifies as a close case is not predetermined but a matter open to debate. As J. S. Russell notes, ‘recognizing relevantly close cases is a matter of good judgment, not demonstration’ (2016, p. 164). Advocates of EOP can presumably maintain their position, asserting that persons and temporal parts are close, irrespective of considerations regarding the notion of lifetime. However, this stance is not favorable for the objectors. EOP, instead of relying on relatively uncontroversial premises that Perdurantists would, in principle, accept, hinges on a tendentious perspective on closeness, which Perdurantists could reject outright.

At any rate, the situation is even worse for the objectors, as there is a second, even more robust argument against the closeness of persons and temporal parts.⁴³ Until now, we’ve assumed that there is a legitimate question about whether a world where an entity is a person could be considered close to a world where the same entity is a temporal part. However, compelling grounds suggest that this question is fundamentally flawed, and there is no basis for debating the closeness of these worlds at all.⁴⁴ To illustrate this point, let’s examine the conjunction of the following two theses:

Identity assumption According to Perdurantism, it is a metaphysical truth that persons are identical to maximal aggregates of appropriately interrelated instantaneous temporal parts, and not to temporal parts.

Necessitism Metaphysical truths are necessarily true.

The Identity Assumption merely articulates a fundamental tenet of Perdurantism, encapsulating one of the central aspects of the Perdurantist framework, and is postulated as a metaphysical truth. *Necessitism*, on the other hand, represents a prevalent

⁴³ Longenecker is aware of this potential objection. In a brief footnote (2020, footnote 2), he writes: ‘One might point out that persons at least meet a safety condition for knowledge: since I am necessarily a person, in all the closest possible worlds in which I believe that I’m a person, I’m correct. [...] But I take it as a datum of intuition—around which one’s epistemic theory should be constructed—that given the great similarity between both internal and external factors, the person can’t know that she is a person rather than a [temporal part].’ However, as we have argued throughout this paper, the intuition that we lack knowledge that we are persons as opposed to parts, while initially compelling, is particularly resistant to being transformed into a fully developed argument. Moreover, as we discussed when considering the first Perdurantist response to a Safety-based EOP, the intuition that we don’t know we are persons appears to conflict with the objective of preserving our knowledge of certain Moorean truths, such as the fact that we will eventually die. Therefore, it’s at least challenging to see how intuitions may provide strong support for the proponents of EOP in this context.

⁴⁴ This argument builds on a more general issue for Safety theorists: the status of beliefs about necessary truths. In a nutshell, necessary truths are true in every possible world. Accordingly, there is no instance of a world where those truths are incorrectly believed. It turns out that beliefs about necessary truths are always safe. A way out for Safety theorists is maintaining that beliefs about necessary truths have to be evaluated with a method different from Safety, e.g., by appealing to the non-phenomenal evidence underlying those beliefs. We take our discussion in the previous sections to show that friends of EOP can hardly pursue this move.

perspective regarding the nature of metaphysical truths. When these two principles are taken together, it leads to the conclusion that there isn't a close scenario in which a person is identical to a temporal part, as there is no scenario *at all* where such an entity is identical to a temporal part. To advance EOP,⁴⁵ those who challenge Perdurantism must disavow the view that metaphysical truths, such as the *Identity Assumption*, are necessarily true. They must also concede the existence of possible worlds where persons are identical to a temporal part rather than a to a maximal aggregate of appropriately interrelated temporal parts. This requires rejecting Necessitism, which, despite facing some recent challenges in certain contexts—see, for example, Miller (2020)—remains a widely held view. Perdurantists are obviously free to not follow the objectors in assuming this stance. And, yet again, it's bad news for the objectors if things boil down to a disagreement on the status of metaphysical truths.

As a result, a Safety-based EOP, despite being *prima facie* attractive, doesn't withstand scrutiny and fails to present a genuine challenge to Perdurantism. In fact, we can conclude that the belief that one is a person is safe, as we have shown that there are no believers close to persons who incorrectly believe that they are persons.

5 Concluding remarks

An epistemic concern targeting the persons' belief that they are persons *prima facie* applies to Perdurantism. In this paper, we have examined various approaches to transform this concern into a full-fledged objection. Indifference principles, appeals to non-phenomenal evidence, and an externalist principle such as Safety do not allow a formulation of this objection. While there may be alternative methods of articulating the objection that we haven't explored, we hope to have rejected the most obvious and compelling ones. The burden of proof rests with the objectors.

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⁴⁵ It's crucial to emphasize that adopting this approach only allows us to explore whether certain relevant worlds can be considered close. Constructing an argument for their closeness represents a separate and distinct step, which brings us back to the dialectical challenges discussed in the previous paragraphs.

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