



Agency and the Successive Structure of Time-Consciousness

Camden Alexander McKenna¹

Received: 31 July 2020 / Accepted: 8 July 2021
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Abstract

I argue for constraining the nomological possibility space of temporal experiences and endorsing the Succession Requirement for agents. The Succession Requirement holds that the basic structure of temporal experience must be successive for agentive subjects, at least in worlds that are law-like in the same way as ours. I aim to establish the Succession Requirement by showing non-successively experiencing agents are not possible for three main reasons, namely that they (1) fail to stand in the right sort of causal relationship to the outcomes of their actions, (2) exhibit the wrong sort of epistemic status for agency, and (3) lack the requisite agentive mental attitude of intentionality. I conclude that agency is incompatible with non-successive experience and therefore we should view the successive temporal structure of experience as a necessary condition for agency. I also suggest that the Succession Requirement may actually extend beyond my main focus on agency, offering preliminary considerations in favor of seeing successive experience as a precondition for selfhood as well. The consequences of the Succession Requirement are wide-ranging, and I discuss various implications for our understanding of agency, the self, time consciousness, and theology, among other things.

1 Introduction

In an oft-quoted passage, William James claims “the unit of composition of our perception of time is a *duration*, with a bow and a stern, as it were—a rearward- and a forward-looking end. It is only as parts of this *duration-block* that the relation of *succession* of one end to the other is perceived.” (James, 1890, pp. 609–610). This quote and the section of *The Principles of Psychology* from which it is extracted have come to be seen as embodying an initial statement of the doctrine of the specious present, which is the idea that the experienced present has some kind of temporal

✉ Camden Alexander McKenna
Camden.McKenna@ed.ac.uk

¹ Department of Philosophy, University of Edinburgh, Dugald Stewart Building, 3 Charles Street, Edinburgh EH8 9AD, Scotland, UK

extension. However, there is a further contention in the above quote that Almäng (2014, p. 364) has noted. Besides the claim that the present is a “duration-block,” as opposed to a “knife-edge”, James also claims that our temporally extended present has a *successive structure*.

This latter claim is often overlooked because we ordinarily take it for granted that experience is successive, whereas we ordinarily do not take it for granted that the perceived present has a duration. For Almäng, James’ succession claim, when made precise, amounts to the following: “That with which we are perceptually presented is given as having temporal parts, which are presented as succeeding and preceding each other in time” (Almäng, 2014, p. 364). This characterization of the succession claim is a minimal description of how we contingently experience the world over time, asserting only what is meant to be obviously manifest.

I think the succession claim can and should be stronger still. I will argue that, for agentive subjects at least, the successive structure of experience is not merely contingent but nomologically necessitated. I will argue for constraining the possibility space of temporal experiences, endorsing what I call the Succession Requirement for agents (SR), which holds the experiences of agentive subjects in our world must have the same basic temporal structure, namely, a successive structure. To be clear, this is not to say there is no variation in the content of temporal experience (subjective time dilation and contraction, for example, are well-documented¹). Rather, SR holds that the basic successive *structure* of temporal experience must remain constant across subjects in this world that we would consider to be agents, where by “successive structure” I mean a temporal organization or *ordering* of the content of experience.

While the proposition that we experience the world in successive fashion may be very intuitive, the stronger modal claim that we *must* experience the world in this way is not. Just as it is not obvious that experienced succession is necessary for agency, non-agency also does not follow in an immediately obvious way from non-succession. Nonetheless, I maintain there are very compelling reasons to believe SR holds. I will focus on three of these in this paper. The first is that successive experience is the only perspective from which an agent can navigate a world that includes causality² as a feature, as non-successive experiencers would not be able to stand in the appropriate causal relations to their actions. Second, a physically grounded informational asymmetry between past and future means that any non-successive experiencer would lack the requisite epistemic status for agency as we understand it. Third, only successive experiencers are capable of the kind of mental attitudes that ground agency—a fact rooted in the processive nature of experience.

The Succession Requirement, if it holds, has a number of surprising and significant implications. Perhaps the most surprising and least intuitive is that it implies a temporal “God’s-eye-view” is actually sub-optimal in several ways. Agents like us occupy a privileged position in our temporal perspective, which is specifically

¹ See Grondin (2010) for a scientific review.

² Although I am speaking of causality as a feature of our world, this should not be interpreted as a claim that “causal laws” exist independently of regularities in nature.

adapted to handle the real physical asymmetries of the universe we inhabit. On this view, were an “eternalist perceiver” (a vision of God promoted by medieval and pre-medieval philosophers and theologians) to exist in our universe, this entity would be hamstrung by a temporal perspective that entails a degree of causal and epistemic impotence.

A further consequence is that SR reveals the central place of succession as an enabling condition for agency. Rather than an accidental feature, the successive experience of the temporally extended agent turns out to be a *sine qua non* for agents like us. We can then move from just describing temporality as a fact of life to a perspective that sees it as an important enabler of the kind of perception and action that allows us to thrive in this world.

Lastly, it may be that SR can actually be extended further. Although I will focus in this paper on the Succession Requirement for agents, I think it is likely that SR is a precondition for selfhood as well. Unfortunately, there are nearly as many definitions of the self as there are selves (real or illusory), so this project will largely be left for the future. However, due to the close connection with the current topic, I will take some time at the end to argue that J. David Velleman’s (2015, p. 187) suggestion, inspired by Buddhist thinking, that we reject the enduring self and see human experience as consisting of “successive momentary subjects, each timelessly entrenched in its own temporal perspective,” may be off the mark for precisely the reason that such a move invokes a plethora of non-successive experiencers, none of which can be the agents we take ourselves to be.

In making the case for SR, I will first elaborate on the concept of succession (Sect. 2) and then describe SR’s philosophical precursors (Sect. 3). Next, I will show that certain apparently radical variations in temporal phenomenology collapse either into non-successive experience or successive experience, and that non-successive experiences of the kind attributed to God in the medieval period and appearing in certain popular works of fiction represent the sort of counterexamples that must be headed off in order for SR to hold (Sect. 4). I will then argue that non-successive experiencers (NSEs) cannot be agents because they (1) lack the appropriate causal relationships for agency, (2) exhibit the wrong sort of epistemic status for agency, and (3) lack the requisite agentive mental attitude of intentionality. Because agency is not compatible with non-successive experience, the succession requirement must therefore obtain for agents in this world.

2 Succession

As long as an experience is sequentially ordered, we can say an experience is *successively structured*. One kind of successive structure is quite familiar: first one thing is experienced as happening, then another thing, and then another, and so on. Another kind of successive structure might be the following: first one thing is experienced as happening, then another thing, then the first thing is experienced again, then another

thing, then the second thing is experienced again, and so on.³ Or we could reverse this order. However, these latter possibilities are still successive in the sense of being experiences that precede and succeed one another, even if those things might occur in an unusual order.

It is customary in such discussions to point out another of James' oft-quoted statements, viz. "a succession of feelings, in and of itself, is not a feeling of succession" (James, 1890, pp. 628–629; cf. Hoerl, 2013 for critical analysis). We can grant this received wisdom here because SR is meant to be a necessary condition for agency and is not being posited as a sufficient condition for the temporal phenomenology of succession. SR is concerned with whether the experiences of agents must *in fact* occur successively and not primarily with whether they are felt to be successive.⁴ Nonetheless, even if James' is right, it is still plausible that SR is necessary for the feeling of succession, though not sufficient. I would also maintain it remains an open question whether or not, as a contingent matter, succession in and of itself *happens to be* sufficient for the experience of succession, even if it is not necessarily so.

As indicated above, the experienced succession need not be an expected ordering. What is experienced also need not be a sequence of *different* things. The content of experience can remain the same, while the structure remains successive. Identical experiences had at different times can be seen as analogous to otherwise identical things lined up, occupying different locations in space; in both cases, a structural order is maintained despite the constituents being identical (though not identical with respect to temporal or spatial position respectively).

For experiences to be successive, it is furthermore not required that the ordering of our experiences corresponds to any kind of veridical ordering of worldly events. The most well-known everyday example of non-correspondence is in dreams, which are still experienced sequentially even if the dream-events themselves seem to have a nonsensical order corresponding to nothing in particular. There are also cases of illusions that suggest we experience non-veridical event ordering in our waking lives. These include the so-called postdictive effects, in which we can seem to perceive events in a different order than that in which they actually happen.⁵

³ Strange experiential sequences like these are on display in the Kurt Vonnegut novels *Slaughterhouse-Five* (1969), whose protagonist becomes "unstuck in time" living through temporally jumbled episodes, and *Timequake* (1998), in which the inhabitants of Earth in 2001 are transported back to 1991 to live the decade all over again exactly as it took place.

⁴ C.D. Broad contrasted the feeling of succession, e.g., looking at a clock's second hand, and actual succession, e.g., looking at an hour hand, which, though exhibiting successive positions, is not immediately felt to be successive (Broad, 1923, p. 351).

⁵ For instance, in the Flash-Lag Illusion, a red square travels from left to right across a black screen until, when it reaches the middle of the screen, a green square is rapidly presented ("flashed") below it. We perceive the green square as having been presented after the red square has passed (so slightly to the left), when in fact it is presented directly below the red square at the midpoint. On one interpretation of this illusion, we perceive a mistaken ordering events—we perceive the red square arriving at the midpoint and carrying on to the right *and then* the presentation of the green square, when in fact the green square was presented at the same time as the arrival of the red square at the mid-point. See McKenna (2020) for an example of the phenomenon.

What would it take then, for experience to be non-successive? In contrast to SR, I define Non-Succession (NS) as the proposition that agentive subjects need not have successive experiences. Non-succession is just a case where experience lacks a sequential order. In this scenario, no experiential events precede or follow one another, so there is no linear organization to experience. Alien as this may sound, claims abound alleging such experiences. It has, for instance, become a cliché in writing about life-and-death situations to describe the experience as one where “time stands still.” A study by Wittmann et al. (2017) found that 120 out of 196 (61%) of assessed reports of near-death experiences gathered from a public repository mentioned a “feeling of timelessness.”⁶ Free-divers (Luecke, 2020),⁷ users of hallucinogenic substances, and adept meditators have all reported “timeless” experiences as well (Wittmann, 2018, pp. 63–74), with proficient meditators in one study claiming they had achieved states wherein “time lost its linearity”, “there was no time”, or they “felt outside time and space” (Berkovich-Ohana et al., 2013, p. 912).

A common rejoinder is that this reported “timelessness” is not to be taken literally. Instead, when scrutinized, such experiences turn out to be cases of extreme time dilation (see, e.g., Arstila, 2012, on time dilation during life-threatening accidents). However we make sense of such reports, one upshot of SR is that these claims can’t be both literal and true if they purport to involve non-successive experience.

3 One Damn Thing After Another: A Brief History

Philosophers have occasionally gestured in the direction of a Succession Requirement in the past but have stopped short of expressly arguing for it. John Stuart Mill, for instance, observed that “Sensations exist before and after one another. This is as much a primordial fact as sensation itself” (Mill, 1865, p. 198). While Mill does not explicitly contend that successively ordered sensations are a primordial fact of sensations for all agents that have them, human or otherwise, the flavor of the Succession Requirement lurks nearby.

We can see something of this idea in the work of other early empiricists as well. For John Locke, succession and duration are derived from experience, much like other ideas. Locke thought that “Reflection on [the] appearances of several ideas one after another in our minds, is that which furnishes us with the idea of SUCCESSION: and the distance between any parts of that succession, or between the appearance of any two ideas in our minds, is that we call DURATION,” (Locke, 1690, p. l.xiv.3/p. 239). On the Lockean view, our memory of the actual “train of ideas

⁶ These proportions are roughly consistent with earlier studies conducted by Bruce Grayson on the same topic, which found 74% (Greyson, 1990) and 64% (Greyson, 1983) of subjects reporting something to the effect of “time stopped” during their near-death experience.

⁷ For example, one freediver interviewed by Suraiya Luecke reflected that “[The dive] does feel like somehow it happened outside the kind of linear passage of conscious time,” (Luecke, 2020: Supplemental Appendix 6).

which constantly succeed one another” thus forms the basis for an inference, following reflection, to the idea of succession (*ibid.*).⁸

Hume took Locke’s idea, which anticipated James’ “stream of consciousness,” and applied it in a more radical way. According to Hume’s “bundle theory,” minds are “nothing but a bundle or collection of different perceptions, which succeed each other with an inconceivable rapidity, and are in a perpetual flux and movement” (Hume, 1740, p. 1.iv.6). Shaun Gallagher (1998) observes that, for Hume, “It is not simply that there is a stream of ideas *in* the mind; rather, the stream of ideas *is* the mind,” (Gallagher, 1998, p. 9). If this is correct, then without such a succession, we do not have minds. If having a mind and being a subject amount to the same thing, then, on such a view of experience, the Succession Requirement holds. However, in keeping with Hume’s antipathy towards metaphysics, he does not argue this characterization of minds is an a priori necessity for agency or subjectivity. Hume would instead be content with the descriptive claim that impressions indicate this streaming succession just is the case for our minds.

Inspired by Hume, Kant took a revolutionary position. For Kant, succession is not an idea derived from or simply given in experience, but rather the concept of time is an a priori necessity for experience, i.e., it is the condition for the appearing of appearances in the first place (Kant, 1787, p. B46). It is tempting to read Kant’s “concept of time” as the necessarily successive structure of experience, but this is not clear enough to confidently assert. However, Kant does say that “time” is an invariant “form” of intuition, and that this form is necessary for experience. In Kant’s system, the forms—space and time—are the fundamental grounds for experiences. Without these forms to order phenomena, distinguishing between particulars becomes impossible (Strawson, 1966/2007, p. 49). Kant held not only that time was *necessary* for experience, but that time is *only* the scaffolding of phenomena, without discernible mind-independent existence as a thing in itself.

Kant’s work does not represent ideal support for the Succession Requirement, even if it may appear he is getting at a similar contention. For one thing, Kant is not concerned with agency per se. Secondly, Kant’s position on temporality is deeply embedded in his transcendental idealist system. In claiming that successive experience is necessary for agents, we need not also endorse the claim that time is only an a priori pure intuition or “form,” as part of a larger view with all its attendant innovations. Finally, the arguments Kant presents on this topic are brief and not terribly conclusive (Kant, 1787, pp. B46–B47). Some further justification for the Succession Requirement is needed.

⁸ See Bardon (2019) for further discussion.

4 Non-Successive Experiencers (NSEs): The Eternal Thought Experiment

The view that non-successive experiences are possible has an ancient pedigree, dating back at least to Augustine (354–430) and Boethius (c. 480–525). Although Augustine (c. 400/2002) had previously postulated that God’s apprehension is non-successive in character (in *Confessions*, Book XI), Boethius introduced the now classic conception of God’s existence as a *totum simul*, i.e. as “everything simultaneously/all at once” (Thiselton, 2005, p. 38). According to Boethius (c. 524/1999), God enjoys “the complete possession all at once of an illimitable life,” (*The Consolation of Philosophy*, Book V, Prose VI).

Henry Chadwick (1981), in his study of Boethius, interprets the doctrine of the *totum simul* as a contrast with our limited human experience: “For us, events fall into past, present, and future time. God is outside time. For him the knowledge of temporal events is an eternal knowledge in the sense that all is simultaneous present,” (ibid., p. 246). In other words, God is always aware of all things that ever happen. Such a view became the standard medieval understanding after Thomas Aquinas (1225–1274) proposed a similar interpretation in his *Summa Theologiae* (c. 1274/1993), which claimed God is immeasurable; without present, past or future; and “simultaneously whole” (Ia, Qq. 10, art. 2).

One might think there is some ambiguity in this medieval and pre-medieval understanding of God’s temporality. Should we interpret Boethius as saying that, unlike humans, for God there is no privileged present, but events still retain some kind of order? I would argue this is not, or at least *not only*, the contention of the doctrine of the *totum simul*. Far from only *existing* over an infinite span of time that includes the event ordering with which we are acquainted, statements from Boethius about God’s experience such as “all is simultaneous present” indicate God *experiences* everything at once, rather than in successive fashion. From the point of view of the subjective being of God, all is one experience, rendering the sequential ordering of events moot from the divine perspective. God’s experience comes down to a single non-successive experience comprehending the infinite at once without a subjective distinction in order. There is no sense of one thing occurring *and then* another thing occurring for such a being. To say this total comprehension is *of* an ordered sequence is already to impose temporal order upon a subjective experience that supposedly lacks it.

The Boethian understanding of God’s mode of eternal existence helps to accommodate God’s omniscience, omnipresence, and temporal boundlessness (as the originator of time). However, Aquinas recognized that such a view entails God’s incapacity to change (Ia, Qq. 10, art. 2). This incapacity appears inconsistent with the conception of an acting, omnipotent supreme being. As Anthony Thiselton puts it, “if eternity denotes *totum simul*, might this not be understood to impose a static mode of being onto God, who then cannot act, or interact, purposively as a living and promissory God?” (Thiselton, 2005, p. 77). Although Aquinas accepted that God’s perfection required changelessness, it seems as though admitting this property limits God’s ability to intervene in a way that could be

understood as properly agential. We shall see in the next section that this worry is justified.

Recently there have been more secular illustrations of non-successive experience. In Chiang's (2002) short story "Story of Your Life," and its 2016 film adaptation *Arrival*, earthlings are confronted by bizarre seven-limbed creatures called heptapods that experience all the events in their lives at once. These creatures employ a strange non-sequential written language called Heptapod B. The human linguist tasked with translating this language eventually learns how it is used and becomes able, like the heptapods themselves, to experience her "past and future all at once" (Chiang, 2002, p. 167). As she explains it, "I perceive—during those glimpses—that entire epoch [the 50 years of her life] as a simultaneity," (ibid.).

We can call such hypothetical subjects that experience time "all at once" non-successive experiencers (NSEs). The peculiar club of NSEs counts not only Chiang's heptapods but also notables like the God of Augustine, Boethius, and Aquinas, as members. The kind of subjectivity in *Story of Your Life*, though ascribed to extra-terrestrials, is ultimately of the same form as the *totum simul* encountered earlier, though restricted to a mortal life.

One might think it is possible for entities to experience what we experience as time in a similar manner to the way we experience space. As Barry Dainton explains, "the fact that *we* don't perceive time itself doesn't mean that time is necessarily unperceivable: there may be logically possible worlds where space–time is substantial, as easily perceived by its inhabitants as any other part of the material furniture of their world. But our universe is not of this kind" (Dainton, 2011, p. 385). There is nothing problematic here for SR so long as these subjects experience our fourth dimension atemporally as well as a higher temporal dimension of meta-time that allows for succession.⁹

Vonnegut (1969) imagined just such meta-experiencers—Tralfamadorians—in his novel *Slaughterhouse-Five*. These Tralfamadorians, actually ancient hyper-intelligent robots, are described as existing outside of time and able to "see in four dimensions" (Vonnegut, 1969, p. 26).¹⁰ As Vonnegut describes them, "The Tralfamadorians can look at the different moments just the way we can look at a stretch of the Rocky Mountains" (Vonnegut, 1969, p. 23). This means Tralfamadorians see humans "as great millipedes—with babies' legs at one end and old people's legs at the other," (ibid., p. 75). Hypothetical entities like these experience our familiar four dimensions through a further dimension that allows for successive experience. As such, they do not violate SR the way heptapods do and would not constitute effective counterexamples.

⁹ We can imagine the relation between ourselves and such higher-dimensional beings would be like that between the inhabitants of "Flatland" (a two-dimensional world), and ourselves. If a three-dimensional object like a sphere passes through Flatland, the inhabitants only ever see a growing, then shrinking, two-dimensional circle. The concept of Flatland was introduced in a satirical novel by Edwin A. Abbott (1884).

¹⁰ Vonnegut's (1959) novel *The Sirens of Titan* also features Tralfamadorians. In that novel, the Tralfamadorian has an ordered, successive experience like ours, while his human friend Winston, who gets himself stuck in a "chrono-synclastic infundibulum," experiences time all at once like a heptapod.

5 Challenging the Possibility of Non-successively Experiencing Agents

Since Anscombe agency has commonly been thought to involve acting “intentionally,” where intending is often specified as having a “reason for acting” (Anscombe, 1957, p. 9). Furthermore, according to standard “event-causal” theories of agency following Davidson (1963), an act’s being intentional, i.e., its having been done for a reason, means that there is a certain kind of causal relationship between the agent’s mental states (e.g., desires and beliefs) and actions.¹¹ The right sort of causal relationship for agency is one where the agent’s intentions are causally connected to its actions, which are meant to bring about a particular effect.

If something like this account of agency is on the right track, then several serious challenges to the possibility of non-successively experiencing agents become apparent. Specifically, I will argue intractable setbacks for NSE agents arise from a faulty causal relationship between the purported agent (the NSE) and the events the agent is meant to cause. Beyond this, NSEs also lack the epistemic status we typically associate with agents. Furthermore, because of their stipulated non-successive mode of experience, NSEs lack the requisite mental states, like intentions, necessary to ground agency. These three problems together suggest NSEs would be incapable of agency given the nature of the world we live in. If non-successive experience is indeed impossible, then we should conclude the Succession Requirement must hold for agents in our world.

5.1 Causal Distance and Direction

NSEs face two major obstacles to agency stemming from causality: the problem of causal distance and the problem of causal direction. I will first address the problem of causal distance. Consider a hypothetical non-successively experiencing entity named Abbott.¹² Abbott, like us, is temporally extended. Only the part of Abbott temporally adjacent to an event such that a causal connection can be made between the organism and the event is capable of directly experiencing it.¹³ The various

¹¹ Schlosser (2019) helpfully distinguishes between the uncontroversial standard *conception* of agency as “the capacity to act intentionally” and the standard *theory* of agency, which fleshes out intentions with a causal account. It is not the aim of this section to argue in favor of the standard conception or standard theory, which has been done elsewhere (e.g., Davidson, 1963), but rather to investigate what these require.

¹² Abbott is the name of a heptapod in Arrival (2016) and also, serendipitously, the author of *Flatland* (1884).

¹³ The notion that causes and effects must be temporally adjacent has been widespread since at least Hume. Hume’s view of the causal chain has it that, “whatever objects are considered as causes and effects are contiguous; and [...] nothing can operate in a time or place which is ever so little removed from those of its existence” (1740: L.iii.2). Cf. Brand (1980), Huemer & Kovitz (2003), and Mumford & Anjum (2011), who argue that simultaneous causation is possible, and Maslen (2018) for why it isn’t. Regardless of whether simultaneous causation is possible at the point of direct causal interaction, it is not physically possible to have an *experience* that is simultaneously or immediately caused by environmental events, because of signal transmission. Nonetheless, events and their perceptions should be causally connected, albeit mediately.

temporal parts of Abbott thus could enjoy experiences of each time *at* each time, but there is no way of integrating the experiences had *at* each time as a diachronic unity spanning Abbott's life. This is because a causal connection between the parts of Abbott that are temporally distant from the experienced event and the experiencing, temporally proximate parts of Abbott cannot be made such that a unified consciousness over both temporal parts might obtain. This kind of connection would require that events exhibit unmediated and temporally bidirectional causal efficacy, regardless of the temporal distance between the events. However, such "spooky action at a temporal distance" is generally seen as physically impossible.¹⁴ Short of adding a further dimension to bridge the gap, and thus allowing for a kind of succession in this new dimension, it is difficult to see how the requisite causal circumstances for diachronically unified consciousness over Abbott's lifetime would be possible in the world as we know it.

To see why Abbott would only have the relevant experiences of a time *at the time that the experienced event takes place*, it is helpful to consider the eternalist metaphysical picture of time more closely. An NSE is stipulated to exist across and to experience multiple times together, but this would not be possible if only the present exists (as presentism maintains). The eternalist position that we live in a block universe does allow for NSEs, however, as they can then spread out over and experience different times in a fully real sense.

In a four-dimensional block universe, time is not like a landscape to be traversed (Williams, 1951, p. 470). It *takes time* to perceive, let alone traverse, a landscape. A traversal of time that skips directly over certain sections necessitates another dimension to allow for the process of traversal. Sticking to a four-dimensional metaphysical picture, the experiencing being, which cannot avail itself of illicit "temporal skipping," needs to be *at a particular time* to experience events at that particular time directly (i.e., not through memories, imagination, or simulation). However, most of the temporal parts of an NSE are too causally distal to the events the NSE is meant to experience. These parts cannot therefore comprise a diachronically unified subject with one integrated experience.

Besides temporal proximity to causes, we should also expect an agent to be embedded in causal chains in the right way. If an agent were not so embedded and the subject were not affected by worldly causes, its perceptions would be of no use to guide adaptive action, as they would not carry information about the environment. The subject should therefore be embedded such that the effects of the environment arrive successively and then the subject can respond *in light* of those effects. There is thus a practical impetus to experience things successively: appropriate, informed action is enabled by the sequence of information flowing in from the environment. If part of the function of subjectivity is to integrate disparate information about

¹⁴ Cf. Adlam (2018), who argues against what she calls the "almost ubiquitous" assumption of temporal locality among contemporary physicists. However, Adlam is not explicitly concerned with causality nor with macroscopic physical processes and, as Ismael (2016, p. 132) has argued, these are the relevant physical processes with respect to agency.

the world and our bodies to adaptively guide behavior, then experiencing things in sequence is the temporal mode best suited for that function.

Causal direction poses another problem for NSEs. Consider a human translocated to a world where the temporal direction is reversed. The subject's perceptual apparatus would not be able to pick up signals from the world. The direction of causation would make subjects from our world "blind" to the reversed world and vice-versa. This is a problem for contact between subjects or worlds with differing temporal directions,¹⁵ but, for similar reasons, it is also problematic for contact between subjects or worlds with a temporal direction like ours and subjects or worlds without a temporal direction at all. If NSEs are understood as not obeying the normal causal directionality of our world, then they would be incapable of meaningfully acting in it. Although this problem fades if we accept that, physically speaking, NSEs follow the normal causal direction, new problems then arise.

Our familiar causal direction turns out to be rooted in the physical nature of our universe, which exhibits causal asymmetry. Craig Callender, following David Lewis (1981), has framed causal asymmetry in terms of counterfactual dependence: "Future outcomes depend upon actions now whereas past outcomes do not," (Callender, 2017, p. 259). This causal asymmetry is not just an anthropocentric illusion. As Jennan Ismael has argued, when we assess effects of interventions in the physical world from a macroscopic perspective, an emergent pattern of temporal asymmetry arises which is not present in fundamental laws of physics, but which ensures that the "direction of determination" is from past to future and not vice versa (Ismael, 2016, p. 134). As Ismael puts it, "local macroscopic interventions of the kind that correspond to visible human actions affect the macroscopic future but leave the past visibly unaffected" (Ismael, 2016, p. 132). We can then "exploit" these real temporal asymmetries in the activity of the physical components of the universe (which we can call "causal direction") to act appropriately for our own ends (Ismael, 2016, p. 129). The kind of regularities that we exploit are not mere correlations but related to, as Ismael says, "asymmetries in the way that information propagates from past to future," which are ultimately grounded in the thermodynamic gradient, i.e., the gradual increase in entropy over time in the physical universe (Ismael, 2016, p. 135; p. 142).

For an NSE, subjective time is stipulated not to have a particular direction, because all times are experienced at once, as opposed to successively. Experienced time would therefore not "flow" forwards or backwards. However, causation, understood as above, remains a feature of the world they and we are supposed to share. The perceptual peculiarities of the hypothetical NSE would still be subject to the direction of causation, underwritten by macroscopic temporal asymmetries resulting from the thermodynamic gradient. While for us, events in the world apparently *cause* our perceptions of events, in an atemporal world or for a purportedly

¹⁵ See Swartz (1973) on the Temporal Ozma Problem for the impossibility of contact between temporally divergent beings.

atemporal being, perceptual experience cannot be so caused.¹⁶ The subjective experience of the NSE is explicitly atemporal in that it is detached from the ordinary direction of determination, but, like us, their physical existence inevitably succumbs to the familiar causal flow, precluding their stipulated atemporality.

If we think that experiencing a lifetime “all-at-once” means experiencing a range of times at once, then NSEs are confronted by the causal problems outlined above. However, if we think the “all-at-once” experience of an NSE refers instead to a single “static” experiential state that is itself extended over time, then one might think some causal worries can be avoided. Such a state would remain entirely changeless through time, while maintaining causal efficacy at any given time and being the effect of worldly causes at any given time. The latter kind of entity, call it a diachronic-state NSE, is not what our literary examples had in mind, but still represents an important possibility to defuse. Furthermore, one might think we can avoid causal problems by taking the radical step of shrinking our NSE down to the mysterious world of “spooky” quantum interactions, disregarding that agency may well be an emergent macroscopic phenomenon. However, neither of these moves can avoid the further problems with which any kind of NSE must contend, to say nothing of their *prima facie* implausibility.

5.2 Epistemic Asymmetry

In our lives we are confronted by an apparently unavoidable epistemic asymmetry between past and future, in that we have knowledge of the past, but the future is opaque (Ismael, 2016, Ch. 6; Callender, 2017, p. 260). NSEs, however, are stipulated to exhibit epistemic symmetry. I will argue that one result of NSEs’ unusual epistemic condition is that they cannot be said to make *choices*. If being able to make choices is a necessary capacity for agency, then NSEs are not agents on this count. I will also argue that enjoying such epistemic symmetry is impossible in our world anyway because epistemic asymmetry, much like causal asymmetry, is grounded in the physical structure of the universe. Far from a shortcoming, it is precisely this epistemic asymmetry that *enables* us to act in ways associated with agency. These considerations lead to the counterintuitive conclusion that NSEs, including the medieval Christian conception of God, would actually be *limited* in what they are able to do in fairly significant and startling ways. The ways in which NSEs are limited include being unable to deliberate, predict, plan, attempt, and choose, among other abilities that rely on the epistemic asymmetry we take for granted.

In the context of agency, we can say a choice is the result of a decision process selecting between multiple events to make one or more of them come about (Ismael, 2016, p. 152). Making choices is an ability we like to believe we exercise routinely (though of course not all of our actions are choices, e.g., reflexes). An illustrative

¹⁶ To illustrate, consider an NSE’s experience at t_1 of a later event at t_5 . At a minimum this would require the later event at t_5 be causally connected to the experience at t_1 , but as we have seen, this is nomologically impossible. This problem confronts the NSE at any given time, because at any given time they are stipulated to experience all other times.

example is investing. Investment choices are typically grounded in inductive inferences, predicting future performance in light of what is known about the past. Now let's say that Abbott, as an enterprising heptapod, opens an investment firm. Needless to say, this would be the biggest money-maker on Wall Street. Abbott is, after all, privy to the future to the same extent we are to the past, as he enjoys epistemic symmetry with respect to time. In fact, Abbott's situation is *even better*—whereas we rely on corruptible records and fallible memories for information about the past, Abbott can immediately perceive every historical and future price at any given time. This is clearly a recipe for financial success.

However, Abbott is unable to make investment *choices* because he does not make a decision in order to bring about a later event. As far as Abbott is concerned, the investment is already, at any given time, perceived as invested. Or, at least, that's the nearest description we can give for Abbott's fundamentally tenseless experience. There is not even a sense for Abbott that he *will* (or *did*) invest in a particular asset as, from his perspective, it would always be as if he is in the moment of buying the asset, forever catching himself in the midst of high finance. We can see that, because of this untensed mode of experience, for Abbott no process of deliberation takes place, no prediction, no decision making, no attempt to bring about an event, and no selection process. These actions all presuppose the utilization of past information in service of enacting future outcomes in an unrealized future. Actions of this type are not only rendered irrelevant by epistemic symmetry but would be impossible except as charade.

This is not merely a problem of omniscience. Knowing how things are going to play out does not necessarily preclude choice. For instance, I might have insider information such that I know tomorrow exactly what will happen, and I may know that I will capitalize on this information by purchasing a certain asset, but nonetheless I will still choose to buy it.

Abbott is in a different predicament. Abbot is not just omniscient but temporally *omnicceptive* (to coin a term), meaning he perceives every time at once. Experiencing all times immediately is a stronger epistemic position than just knowing what happens, because experiential knowledge outstrips ordinary propositional knowledge. For Abbott it would be as if, at any point in time, he sees his portfolio including everything his investment company has ever bought, is buying, or will buy. With the entire temporal extension of the portfolio immediately transparent and immutable, there are no choices available for Abbott to make. If making choices is essential for agency, we can see then that NSEs fail to satisfy this condition. So, while Abbott's foray into finance might be exceedingly lucrative, it would not be empowering.

An NSE also does not *try* to do things. Trying requires a desire for an eventuality to come about in addition to the possibility it does not. However, from Abbott's perspective, trying would be nonsensical. Abbot might for example join an expedition to the South Pole, but he will not *try* to arrive there because, from his perspective, he is always already there (or not—he might expire *en route*, in which case, for him, he is already dying in Antarctica from the time he comes into existence).

Likewise, NSEs have no need to deliberate or plan for the future, as they are supposed to experience what we call the future as if it were what we call the present, making planning redundant (although Abbott could of course make a show of

assessing an earnings report, going through the motions of an investment decision and fooling his clients). Indeed, NSEs *cannot* deliberate or plan because it is impossible for them to perceive an open future. From an NSE's perspective, there is simply nothing to plan *for*.¹⁷

It is likely that NSEs lack many more capacities often associated with agency that rely on epistemic asymmetry as well. One of these is the ability to “temporally decenter,” or take a temporal perspective that is different from one's own (McCormack and Hoerl, 1999, p. 174). Craig Callender, as well as L. A. Paul, maintain this temporal decentering ability is crucial to the emergence of the self, understood here as a “narrative center of gravity” (following Dennett, 1993, p. 418), and crucial to the emergence of an agential perspective (Callender, 2017, pp. 255–259; Paul, 2017, pp. 263–264). Reflection on an NSE's circumstances reveals they would be deficient in this regard. For a being that experiences its entire life at once, there can be no question of taking different temporal perspectives because that being takes all of its possible temporal perspectives at any given time. There is no picking and choosing moments of its life to experience. The heptapod cannot revisit its “past” or imagine its “future.” Being able to do these things requires successive experiences.

A related issue connected to the NSE's “closed future” is that, as Callender points out, “All of our evidence is confirmatory of the idea that our decision is the causal trigger that leads to, or brings about, the event. Anything prior to that decision can be trumped by the decision itself. [...] Part of what it is to be an agent is to have this sense of freedom, a sense that other future options are in some sense live,” (Callender, 2017, p. 260). This same feeling does not apply to our past, about which we cannot change our minds and expect a different outcome. However, for an NSE there is no special epistemic status for the future. It is experienced like any other time. It is therefore plausible that, for an NSE, there would not be a *sense* of agency either.¹⁸

A small wrinkle appears in these epistemic considerations, however, if a finite NSE's action takes place beyond the scope of its experience, e.g., after death. Infinite NSEs, like the medieval Christian God, would be omniscient over eternity, but finite NSEs, like heptapods, could still be ignorant of those things which take place after their life ends. Thus, regarding circumstances beyond the scope of their total experience, an NSE runs into the same epistemic asymmetry we do and consequently may appear more like an agent, albeit from beyond the grave.

Even so, there are still reasons for thinking any NSE's epistemic setup just wouldn't work in our universe. An NSE faces no pressure to gather information to guide its action and yet it is this task our minds appear to have evolved specifically

¹⁷ See also Ismael (2016, pp. 144–153) concerning our open future and the practical asymmetry of choice.

¹⁸ A further asymmetry that may be relevant to our sense of agency, and which NSEs lack, is the attitudinal asymmetry between past, present, and future events, or what Callender has called the “Temporal Value Asymmetry” (Callender 2017, p. 264). This asymmetry refers to the difference in our attitudes towards and evaluations of events depending on our temporal relation to those events. So, while we might sensibly think to ourselves “Thank goodness that's over!” after surviving a harrowing Antarctic expedition, an NSE would not say the same (see also Prior 1959, who put our temporal value asymmetry to work against eternalism).

to carry out. The reasons we face an epistemic asymmetry are also not an accidental feature of our human minds. Once again, there are physical facts constraining us. As Ismael puts it, “what explains our greater knowledge of the past than the future is that along [the thermodynamic] gradient, inferences from the present, surveyable macroscopic state of the world to its past [...] are much more powerful inferences than inferences from present to future” (Ismael, 2016, p. 143). Ismael goes on, “the thermodynamic gradient makes it possible to create records in the environment that will carry information to our future selves” (Ismael, 2016, p. 145). What the gradient *does not do* is make it possible to carry information from our future selves to our past selves, which is what an NSE needs to do to exist as a diachronically unified entity. To us, the future is not only epistemically inaccessible but seems as if it has not yet occurred and will come to be shaped by us. The propagation and accumulation of information apparently works in one direction, such that even if the future already exists in some sense, *it might as well not* to any being in our universe. This is a potentially insurmountable obstacle to the actual existence of an NSE. An upshot of this is that our own successive mode of experience should be seen not as limitation, but on the contrary, an enabler of a kind of existence that is uniquely suited to thrive in the world we live in.

5.3 Intentionality

As mentioned previously, on standard accounts of agency, agents need to have particular kinds of mental states. Specifically, agents need to be able to form intentions and act on them, and these intentions should be causally related to the eventual actions. I will now argue non-succession precludes the formation of intentions, thus ruling out agency as traditionally understood. NSEs should be seen as incapable of forming intentions for two main reasons. One is a fairly straightforward worry related to the problem of epistemic asymmetry. The worry is that, while we intend future events to come about as a result of our actions, the future is not available to an NSE as a domain of uncertainty. It then does not make sense for an NSE to *intend* that future events come about, as these events have no special status and are experienced directly. Just as we do not form intentions concerning the past, NSEs would not form intentions about the future.

A second, more troublesome worry is rooted in the ontology of mental states like intentions, itself intimately related to the ontology of experiences. Experiences are not static, unchanging entities, but evolving processes defined, at least in part, by their dynamism. To make this thought more ontologically explicit, we can follow O’Shaughnessy (2000, Part I.2) and Soteriou (2016, Ch. 6), who claim experience is “not merely a *continuous existent* across time, [but] an activity and therefore also a *process*, and thus occurrently renewed in each instant in which it continues to exist,” (O’Shaughnessy, 2000, p. 42).¹⁹ Occurrent processes are defined by being

¹⁹ See also Bartlett (2018), who argues nearly all philosophers of mind hold that experiences are processive, even if this is not explicitly stated. As I have indicated in this paragraph, the process view of experience may shut down the possibility of NSEs a priori, not just as agents, but in any sense. However, one can remain sceptical of the process view of experience and the arguments in this section concerning intentions should still apply.

successively present (Soteriou, 2013, p. 139). Unfolding processes, as opposed to states, also allow experienced events to have duration, i.e., to take time. If we agree that experience should be defined in this way, then an NSE is incapable of experience as such. This is because, for a non-successively experiencing being, every event of its life is supposed to be experienced all at once at each moment. There can then be no individuable experiences at different times, separately caused by different events or that cause different events at different times. Instead, there would be just one state.

While the above calls into question the very possibility of non-successive experience, one still might think a non-experiencing entity could be an agent. It is perhaps still possible with this understanding that NSEs have intentions, provided *intentions* are not necessarily processive. If an intention is just a set of dispositional facts, for instance, this could be the case. Abbott could still exhibit an innate set of non-qualitatively felt dispositions that occupy a causal role(s). However, such dispositional properties do not seem distinctive of those entities we consider to be agents, nor relevant to their status as such. Inanimate objects like toasters also have dispositions to behave in certain ways but seeing toasters as intentional agents does violence to our ordinary concept of agency (cf. Dennett, 1987).

I would argue instead that mental states like intentions must be occurrent processes. One reason for thinking this is the case is that intentions have a distinctive cognitive phenomenology—it *feels like* something to intend to do something, and it *feels like* we are the ones doing it.²⁰ There is an urge towards action preceding and ostensibly precipitating the action. For genuine agents, it is not just that we act because we are disposed to do so, even if dispositions play a role. Mental states like intentions are, at least in part, *experienced*, and as such, must be processive for the same reasons as experiences. Without this experiential component, the NSE lacks a critical element involved in our understanding of intentions, and thus also fails the intentional criterion for agents.

Beyond the inappropriate cognitive phenomenology, the changeless intentions of an NSE would be unable to play the role of cause to all the actions of the subject. In order to do so the state would have to exhibit differing causal powers and susceptibilities at different times, which it can't do without changing in some way. However, for the NSE, there can be no change in intention, as a change in intention necessitates an experiential succession.²¹

Now, it may appear this problem is avoided if a mental state can change without the NSE's experience changing. So long as we accept there are subpersonal mental states such a contention seems eminently plausible. However, the *kinds* of mental states that are most relevant to agency are not subpersonal ones. It is personal-level mental states that must have the appropriate causal role, otherwise we are hard pressed to distinguish automatic reactions from the actions of an agentic subject.

²⁰ See Horgan (2011) for further discussion and defense of the cognitive phenomenology of agency.

²¹ As Merleau-Ponty puts it: "Change presupposes a certain position which I take up and from which I see things in procession before me: there are no events without someone to whom they happen and whose finite perspective is the basis of their individuality," (Merleau-Ponty 1962, p. 411).

As a result of these considerations, we should think NSEs are incapable of forming dynamic intentions and thus also incapable of the kind of intentionality that agency requires.

One might think there may yet be ways of salvaging agency for NSEs. For instance, NSEs might have *sui generis* non-processive intention-like states that occupy the functional role of an intention without phenomenal character. These non-processive, non-experiential states might be causally related to actions and their effects. Limited to a changeless state extended over time, and correspondingly limited in causal power, without cognitive phenomenology, experience, or the various abilities predicated on epistemic asymmetry, such an entity would stray radically from our ordinary understanding of agency.

5.4 NSEs and Non-standard Theories of Agency

We might still wonder how NSEs would fare on a non-causal approach to agency (e.g. Melden, 1961; O'Connor, 2000). On such accounts, the agent need not stand in any particular causal relation with their actions. Understanding agency in this way doesn't let NSEs off the hook for several reasons. One is that the problems of causal asymmetry are not only problems for agency, but also problems for the NSE's existence as a diachronically unified subject. There just cannot be direct causation between temporally distal events or non-directed causation on the macroscopic scale, yet these conditions must obtain in order to furnish the NSE with the experience it is stipulated to have. However, even ignoring these causal issues, an NSE would still run into epistemic asymmetry problems and the problem of non-intention.

Suppose however we agree with Anscombe (1957, p. 9) that intentional actions are those which are done for a reason, but reject the standard contention that agency also requires a special causal connection between intention and events. Perhaps then, it might seem, NSEs can at least avoid the problem of non-intention. We might think a non-successively experiencing being may still have reasons to act in certain ways, even though such reasons may have to be as "ever-present" to the NSE as the NSE's experience.

I do not think such a move would be successful. Appealing to reasons requires the subject enjoy certain mental states, including belief states. However, as discussed earlier, these mental states have a distinctive cognitive phenomenology that suggests they must be processive in character and so not the kind of thing that can be had at a single moment. Instead, it is essential that beliefs are experienced successively. Perhaps more importantly, though, is that for an agent to act according to reasons, the reasons should *precede* the action. Unfortunately, non-succession makes this impossible by definition.

5.5 Losing Your Self in the Moment

So far we have been considering experiential succession as a precondition for agency, but it is likely experienced succession is also a condition for selfhood. While I think this idea is somewhat intuitive, it is not universally shared. J. David

Velleman, for instance, drawing on Buddhist thinking and Derek Parfit's "neo-Lockean" account of persons (Parfit, 1981, p. 281), maintains "the existence of an enduring self is an illusion" (Velleman, 2015, p. 175). For Velleman, however, the emphasis is on *enduring*. An enduring self persists through time in such a way that it is whole at any given time. Though this might be how we ordinarily conceive of ourselves, Velleman argues selves are in fact not like this at all. Rather, selves should be seen as *perduring* objects, in that they persist by the succession over time of individual temporal parts.

Recognizing ourselves as perduring entities, Velleman hypothesizes, could induce a radical and potentially liberating perspective shift. As he puts it: "Suppose that I could learn to experience my successive moments of consciousness—*now* and *now* and *now*—as successive notes in a performance with no enduring listener, no self-identical subject for whom these moments would be *now* and *then* and *then again*" (Velleman, 2015, p. 187). Your present self, in this scenario, "would think of itself, and each of the subjects with whom it communicates by memory and anticipation, as seeing its own present moment, with none of them seeing a succession of moments as present," (ibid.). This present self, and indeed each momentary self on such a conception, should by now look very familiar. What we have here is a collection of non-successive experiencers together comprising what we mistakenly think is an enduring self.

Velleman goes on to claim that for one's present self, "time would no longer seem to pass, because [one's] experience would no longer include a subject of its passage—just successive momentary subjects, each timelessly entrenched in its own temporal perspective," (ibid.). As tentative evidence for this, Velleman cites research on "flow-states" during which we tend to "lose awareness of time's passing" and lose self-awareness to boot (Csikszentmihalyi, 1990). Velleman is concerned with the extent to which we can shift our perspective towards the perduring self and whether this could console us and alleviate suffering. While Velleman ultimately admits that, as far as we ordinary humans are concerned, "we can't stop the self from seeming to endure," (Velleman, 2015, p. 192), I would argue the thought experiment itself is incoherent, insofar as it presents NSEs not only as possible but as our fundamental constituents.

We have already seen that NSEs cannot be agents. We would therefore be remiss in applying agential language to the time slices of Velleman's hypothetical scenario. The notion of self does not apply here either. If we identify the agential self with a "locus of control," (Ismael, 2016, p. 101), then without successive experience such a self does not exist, given the arguments of previous sections. Other conceptions of the self also fail to obtain without successive experience. Consider, for example, that there are a number of essentially processive actions, such as "seeing," "thinking," and "communicating" which can't be said to be things that a *momentary* subject is ever capable of doing. There are predication errors in describing a momentary self as interacting with its environment, itself, and other subjects. The reason for the errors in predication is that the appropriate grammatical subject to which the predicates would be applied has dropped out of existence by failing to extend over time. We need that subject to exist wholly at

multiple times, not only at one time, in order to predicate of that self the processive actions we typically want a self to be able to perform.

A more accurate description of the consequences of fully realizing the perduring self would be an *absence* of an experiencing self. Non-successive experience is not just nomologically impossible for agents, it also entails non-selfhood. This does not mean a state of non-succession isn't possible; it may be, but only if we eliminate both selves and our agency. This sort of total "ego-death" is reported by users of hallucinogens (see, e.g., Nour et al., 2016) and is arguably the goal of some forms of meditation. Many Buddhist traditions,²² for example, do not seek a scenario like Velleman describes, with its multiplicity of selves, but instead seek "no-self" (Sanskrit: *anātman*).²³ If the truth is that we are perduring rather than enduring entities, fully realizing this truth could then be more world-shattering than Velleman's thought experiment suggests.

There are potential ethical consequences here as well. If SR is true, as I have claimed, of both agency and selfhood, then it is likely NSEs would not be appropriate targets of moral judgment. Because non-agents do not have a claim to moral responsibility, it would make as much sense to call an NSE's actions "good" or "bad" as it would to describe a toaster this way. Taking the thought to its most provocative conclusion, if we consider our most famous alleged NSE—the medieval Christian God—it seems we have to say claims like "God is good" involve errors in predication as well.

It should be plain that I am not claiming selves or agents necessarily *exist* in any strong sense. What I *am* claiming is that, for such things to exist in an ontologically strong sense *or* as some sort of illusion,²⁴ it is paramount that we as subjects enjoy a successively structured experience. There are, of course, very many different conceptions of "self," and exploring the role that the temporal structure of our experience plays for each of these exceeds the scope of the present paper. However, I hope this brief excursion has highlighted the potential extensibility of SR to domains beyond agency.

²² There is great diversity within Buddhism, but the concept of "no-self" is widespread, appearing for example in the *Dhammapada* (Carter and Palihawadana, 2000), believed by the faithful to be a record of Buddha's own words. The interpretation of this concept is naturally the subject of much debate. See Bagini (2018, pp. 175–188) for an accessible overview.

²³ D. T. Suzuki, for example, quotes a poem by the Zen master Bunan: "While alive/Be a dead man,/Thoroughly dead;/And act as you will./And all is good," which he then expounds upon: "To love God is to have no self, to be of no-mind, to become 'a dead man,' to be free from the constrictive motivations of consciousness," (Suzuki 1986, p. 16).

²⁴ Dennett (1993), for example, claims the self doesn't exist except as a kind of "virtual self." For this we need to construct a serial narrative out of a jostling effervescence of mental activity. So it is that, even for the illusory self to exist, successive experience comes along with it.

6 Conclusion

I have argued that successive experience is necessary for agency in our world. I have tried to demonstrate this by showing that non-successive experiencers are nomologically impossible. Non-successive experiencers face several intractable problems for agency. These include temporal remoteness from causes and effects and inconsistencies in causal direction. In addition, non-successive experiencers lack the epistemic asymmetry associated with agency. Finally, non-successive experiencers are seemingly incapable of having mental states like intentions, which are essential to agency. After establishing the Succession Requirement for agents, I then suggested that SR can likely be extended to selfhood as well, and perhaps further.

In this world, it is reasonable to think that agency is impossible without succession and that the experience of agentive subjects requires a successive temporal structure. We can expect, therefore, that agents we encounter in our world will enjoy the same kind of successive temporal structure that we do. Entities without a successive experiential structure, on the other hand, should not be considered genuine agents.

Acknowledgements I am very grateful for the work of two anonymous referees, whose close reading and insightful comments greatly improved this paper. I am also very grateful to Alistair Isaac, Alasdair Richmond, and Keith Wilson, who provided excellent feedback on multiple versions of this manuscript and encouraged me to pursue its publication. I would also like to thank those that attended my presentation of these ideas at MindGrad (June 2021), the Australasian Postgraduate Philosophy Conference (September 2020), and the Active Minds meetings at the University of Edinburgh run by Alistair Isaac and Dave Ward. Further thanks are owed to Kyle Rattray for proofing assistance. Finally, I would like to dedicate this paper to my family for remaining as supportive as ever during a challenging year.

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