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A nonreductive physicalist libertarian free will

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ABSTRACT
Libertarian free will is, roughly, the view that the same agential states can cause different possible actions. Nonreductive physicalism is, roughly, the view that mental states cause actions to occur, while these actions also have sufficient physical causes. Though libertarian free will and nonreductive physicalism have overlapping subject matter, and while libertarian free will is currently trending at the same time as nonreductive physicalism is a dominant metaphysical posture, there are few sustained expositions of a nonreductive physicalist model of libertarian free will – indeed some tell against such an admixture. This paper concocts such a blend by articulating and defending, with some caveats, a nonreductive physicalist model of libertarian free will.

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Libertarian free will is, roughly, the view that the same agential states (i.e. agents or agent-involving events) can cause different possible actions: Maddy can choose, based on her deliberations, to either stand up and get a beer, or stay seated in her comfortable couch. Nonreductive physicalism is, roughly, the view that mental states cause actions to occur, while these actions also have distinct sufficient physical causes: Maddy's deliberations cause her to decide to get a beer, though her getting a beer also has a distinct complete neuromusculoskeletal cause as well. Though libertarian free will and nonreductive physicalism have overlapping subject matter, and while libertarian free will is currently trending (Kane 2019; Ekstrom 2019; Lemos 2018; Franklin 2018; Balaguer 2014a) at the same time as nonreductive physicalism is a dominant metaphysical posture, there are few sustained expositions of a nonreductive physicalist model of libertarian free will – indeed some tell against such an admixture (Gebharter 2020; Widerker 2016). This paper concocts such a blend by

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articulating and defending, with some caveats, a nonreductive physicalist model of libertarian free will.

This paper is divided into four parts. In Section 1, I minimally define libertarian free will as accepting *Agential Indeterminism*, according to which agential causes influence whether or not effects occur. In Section 2, I minimally define nonreductive physicalism as accepting a *Nonreductive* version of *Physicalism*, according to which agential causes supervene upon distinct physical causes that completely cause effects. In Section 3, I blend nonreductive physicalism together with libertarian free will, and briefly demonstrate how it is preferable to two other blending attempts, namely Mark Balaguer's reductive physicalist libertarian free will and Christian List's nonreductive physicalist model of so-called compatibilist libertarian free will. In Section 4, I consider three objections to the nonreductive physicalist model of libertarian free will presented here.

1. Libertarian free will

As Peter Van Inwagen defines it, *Determinism* is 'the thesis that there is at any instant exactly one physically possible future' (Van Inwagen 1983, 3). Or, more particularly, causes *C* (i.e. the arrangements and properties of all the substances in the universe at time *t*), determine with nomological necessity that effect *E* occurs. This definition leaves open the possibility that the deterministic causes of effect *E* are agential or physical, so long as the causes determine with nomological necessity their effects. Since this distinction between agential deterministic causes and physical deterministic causes of effects is central to both the nonreductive physicalist model of libertarian free will outlined below, and several alternatives and objections to the view, it is worth separating determinism out into these two possibilities here, as applied to some particular effect *E*:

> *Physical Determinism*: physical causes *P* (i.e. the arrangements and properties of all the physical substances in the universe at time *t*), determine with nomological necessity that effect *E* occurs.
>
> *Agential Determinism*: agential causes *A* (i.e. the background reasons, motivations, efforts, and/or character traits of the agent at time *t*) determine with nomological necessity that effect *E* occurs.

Physical Determinism is a principle stating that it is physical causes *P* that determine with nomological necessity that *E* occurs. For example, the mass of the earth, combined with the spatial proximity of a plate to the earth, combined with the mass of the plate, determines, in accordance

with Newton's law of universal gravitation, that the plate will fall towards the earth at a certain speed. *Agential Determinism* is a principle stating that agential causes *A* determine with nomological necessity that *E* occurs. For example, Jenni is offered chocolate cake while famished, and her desperate desire for food determines her to eat the cake – she cannot resist.

As Laura Ekstrom succinctly summarizes, *Indeterminism* 'is defined simply as the negation of the thesis of determinism' (Ekstrom 2019, 127). Or, it is not the case that *C* determines with nomological necessity that effect *E* occurs. Although *C* does not determine with nomological necessity that effect *E* occurs, it is common to presume that *C* nevertheless indeterministically causes *E* to occur or not.[1] *Indeterminism* can also be sub-divided into an agential variant and a physical variant. This distinction between agential indeterministic causes and physical indeterministic causes of effects is also central to the nonreductive physicalist model of libertarian free will outlined below, as well as alternatives and objections to the view, so it is worth separating these variants out here, as applied to some particular effect *E*:

> *Physical Indeterminism*: physical causes *P* (i.e. the arrangements and physical properties of all the physical substances in the universe at time *t*) indeterministically causes *E* to occur or not.
>
> *Agential Indeterminism*: agential causes *A* (i.e. the background reasons, motivations, and/or character traits of the agent at time *t*) indeterministically causes *E* to occur or not.

Physical Indeterminism is a principle stating that, while *physical* cause *P* does not nomologically necessitate that *E* occurs, it is nevertheless *P* that indeterministically causes *E* to occur or not. Some examples: a subatomic particle's capacities for tunnelling indeterministically causes whether or not it passes through a thin barrier; an atom's radioactive half-life

[1]Since indeterminism is the negation of determinism, the general definition of indeterministic causation is the view that *C* causes, without nomologically necessitating, *E*. I leave open the particular model of indeterministic causation. Most commonly, *C* is an indeterministic cause of *E* when *C* raises the chance of *E* occurring (Suppes 1984; Lewis 1986, 176– 177; Ramachandran 2004, 152). Relevant concerns with this model include the fact that causation can occur where probabilities are not raised (Glynn 2011, 349ff), and vice versa (Hitchcock 2004), which may disentangle causation from probability-raising. Others take indeterministic causation to involve actual causal processes operating within indeterministic contexts, where *C* is an indeterministic cause of *E* when there is a chance of *E* occurring, and *C* causes *E* via an actual causal process (Schaffer 2001). To borrow an example from Christopher Hitchcock, two gunmen are shooting at a vase, each with a fifty percent chance of hitting the vase, thus jointly there is a seventy five percent chance of the vase smashing. Gunman *A* strikes the vase, while gunman *B* misses. The firing from gunman *B* raises the chance the vase will break from fifty percent to seventy five percent, but does not cause the vase to break. Rather, it is gunman *A* that actually causes the vase to break (Hitchcock 2004, 410).

indeterministically causes whether or not an atom decays at a certain time. And, on the plausible assumption that physical indeterminism occurs in human brains: chemical processes in a fired neuron's terminal indeterministically causes whether calcium channels open in the neuron's terminal or not, which indeterministically causes whether and when vesicles in the neuron's terminal fuse to the cell membrane or not, thereby influencing whether neurotransmitters are released into the synaptic cleft or not. Scientific evidence for *Physical Indeterminism* in the brain is often provided by advocates of libertarian free will (Balaguer 2014a, 95–96; Franklin 2013, 132–136; Kane 1996, 128–130). They cite sources and evidence suggesting that neurotransmitter release and uptake are at present understood as stochastic processes (Dayan and Abbott 2001, 179; Hammond 2008, 157–159; Weber 2005, 669; Dittman and Timothy 2019, 180–183).

Agential Indeterminism is a principle stating that *agential* causes *A* indeterministically cause *E* to occur or not. For example, Maddy is deciding whether to get up and get another beer. Her reasons to stay seated inhibit her to some degree, but her reasons for a beer renders it likely that she will get up. She decides to get another beer, so she stands up and gets the beer, though she almost chooses not to get a beer. Here her reasons for getting a beer indeterministically cause her decision to get a beer, and her ensuing standing up to get the beer, when she could have chosen not to get a beer. *Agential Indeterminism* is central to many models of libertarian free will. Agent causal libertarians take the agent as itself to be the agential cause *A* that indeterministically causes *E* to occur if it occurs. Event-causal libertarians take agent-involving events such as the agent's reasons, motivations, intentions, efforts and/or background character to be the agential cause *A* that indeterministically causes *E* to occur if it occurs. In all of these cases *Agential Indeterminism* is satisfied since the agent in some way indeterministically causes *E* to occur if it occurs. *Agential Indeterminism* is itself dissolvable into the following two conditions, again applied to some effect *E*:

Agential Causation: agential cause *A* causally influences effect *E*.

Alternative Possibilities: given agential cause *A*, *E* may or may not occur.

Agential Causation is a principle stating that agential causes such as the agent's reasons, motivations, efforts and background character causally contribute to the agent's act of deciding, which causally contributes to the resulting act of overt bodily movement. One piece of support for

Agential Causation that is central to the argumentation below is the following *Causal Theory of Action*:

> *Causal Theory of Action*: a necessary condition for the occurrence of an action *E* is that it is caused by some agential cause *A*.

The *Causal Theory of Action* takes actions to be similar to sunburns or banknotes. As an otherwise indistinguishable burn, caused by a tanning bed rather than the sun, is not a sunburn, so an otherwise indistinguishable bodily movement that does not have an agential cause *A* is not an action (Smith 2010, 47; Schlosser 2009, 77–78). Monique's accidental leg rising in response to a reflex hammer is a bodily movement but is not the action of Monique raising her leg, as her reasons do not cause her leg rising. This orthodox standard account of action leads to the view that the action *E* cannot occur without some agential cause *A*, so action *E* requires some agential cause, which is *Agential Causation*.

Advocates of libertarian free will argue that *Agential Causation* alone is not sufficient for free will. Consider Johnny, who is a drug addict who craves the high, but wishes he could quit. When offered drugs, he chooses to take them, caused by his reasons for wanting the high, satisfying the *Agential Causation* requirement (cp. List 2019, 26; Lemos 2018, 2; Balaguer 2014a, 62). But he is not free in the libertarian sense because he also wishes he could quit, but cannot. Adding *Alternative Possibilities* solves this type of case, as it stipulates that though agential cause *A* occurs, *A* does not determine with nomological necessity that *E* occurs, rather *E* may or may not occur – Johnny has reasons for wanting the high, and he could take the drugs or refrain, so he is free. Numerous advocates of libertarian free will suggest that these two conditions are central for libertarian free will (Ekstrom 2019, 132–134; Miltenburg and Ometto 2019, 166; Franklin 2018, 11–23). Since the combination of *Agential Causation* with *Alternative Possibilities* yields *Agential Indeterminism*, take acceptance of *Agential Indeterminism* to represent libertarianism about free will for the purposes of this paper.[2]

[2] *Agential Indeterminism* may not be a sufficient condition for libertarian free will. Many advocates of libertarian free will posit additional features for libertarian free will, and I do not dispute these possibilities. Indeed, in Section 3, I argue that libertarian free will also requires agents to have some control over what actions occur. *Agential Indeterminism* may not be a necessary condition for libertarian free will either. So-called non-causal libertarians reject the *Agent Causation* component, thereby rejecting *Agential Indeterminism*. But a bulk of libertarians about free will endorse *Agential Indeterminism*, so it suffices as an approximate definition of libertarian free will here.

2. Nonreductive physicalism

The free will debate is conceptually linked with the mental causation debate. Advocates of free will attempt to establish that agential causes bring about actions such as choices or acts of overt bodily movements. The mental causation debate centres around establishing how mental causes bring about actions such as choices or acts of overt bodily movements as well. The attempt to cross-pollinate these fields seems, therefore, fruitful. Within the mental causation debate, *Nonreductive Physicalism* is currently orthodox, and it is the combination of *Physicalism* and *Nonreduction*. Here is one common though not unanimous definition of *Physicalism*:

> *Physicalism*: 'Any world which is a minimal physical duplicate of our world is a duplicate simpliciter of our world' (Jackson 1998, 12).

If we make a physical duplicate of the universe, that universe would be a duplicate universe *simpliciter* – no rabbits, minds or societies would be missing or out of place. If we take away all the physical stuff, there would be no stuff left – no ghosts, no gods, no immaterial souls. Since the physical is all that exists, everything that exists is constituted of physical objects, and everything that happens has a complete physical cause. These two consequences of *Physicalism* are spelled out in the following two principles:

> *Supervenience:* 'Whenever something has a mental property [*A*] at *t*, it does so in virtue of the fact that it has, at *t*, a physical base property, *P*, where *P* necessitates [*A*]' (Kim 2009, 40).

> *Physical Causal Completeness*: 'if a physical [effect *E*] has a cause at *t*, it has a sufficient physical cause at *t*' (Kim 2009, 38).

Since any duplicate of the physical world is a duplicate world in totality, everything that exists, including the relevant case of mental or agential properties, must supervene upon the physical world. *Supervenience* is intuitive in numerous instances: the apple's redness determines that the apple is coloured, the horse-wise arrangement of parts determines that there is a horse. *Supervenience* is a principle that indicates *A* depends upon, because it is determined by, some physical base *P*, so the occurrence of *P* necessitates the occurrence of *A*. While the necessity relation comes in varying strengths, I shall follow nonreductive physicalist orthodoxy, according to which the necessity relation from *P* to *A* is metaphysically necessary (Tiehen 2018, 538; Kallestrup 2006, 473; Bennett

2003, 490). Some nonreductive physicalists prefer to emphasize other sorts of dependency relations between *A* and *P*, such as realization (Shoemaker 2007), constitution (Pereboom 2002), determinables (Yablo 1992), or, more recently, grounding (Kroedel and Schultz 2016; Stenwall 2020). I leave open these other possible relations, as they also share the core view that *P* metaphysically necessitates and determines *A*, and *A* depends upon some *P*, as articulated in *Supervenience*.

Since any duplicate of the physical world is a duplicate world in totality, everything depends for its existence on the physical world, so all physical effects have sufficient physical causes. This principle of *Physical Causal Completeness* is supported by various conservation laws (Papineau 2001, 13ff) and various successes in the neurosciences (Melnyk 2003, 238ff; Papineau 2001, 31), so is often taken to be 'fully established' (Papineau 2001, 33). Here is an example: Marvin is crying because a complex physical process in his brain caused his lacrimal sac to secrete tears onto his eye surface.

The principle of *Physical Causal Completeness* comes with several relevant caveats. First, while the principle states that physical effects have sufficient physical causes, it remains open for distinct mental causes to also cause physical effects (Crane and Mellor 1990, 206; Montero 2003, 174; Kim 2009, 38). Some think this is a vulnerability that could be closed by insisting that physical effects only have sufficient physical causes (Montero 2003, 175; Vicente 2006, 150). I follow those who take this move to be question begging, since it automatically rules out the nonreductive physicalist view that distinct mental causes have physical effects (Lowe 2000, 572; Kim 2005, 52).

Since *Physical Determinism* and *Physical Indeterminism* are parts of the wider discussion, it is worth dividing *Physical Causal Completeness* into two, beginning with *Physical Causal Completeness* as operative in a deterministic universe:

> *Deterministic Physical Causal Completeness*: if a physical effect *E* has a cause at *t*, it has a sufficient physical cause at *t* that determines with nomological necessity *E*.

In a deterministic universe, the physical cause *P* determines with nomological necessity one unique effect *E*. If *Physical Determinism* fails, and is replaced by *Physical Indeterminism*, *Deterministic Physical Causal Completeness* fails in this respect as well. After all, if the occurrence of *P* can lead to *E* occurring or not occurring (from *Physical Indeterminism*) then it is not the case that the occurrence of *P* determines with nomological necessity

that *E* occurs (Rigato 2018, 388; Tse 2018, 252–253). Fortunately, it is possible to reframe *Physical Causal Completeness* for an indeterministic universe. Doing so involves highlighting the following definition of sufficient causation also operative in *Physical Causal Completeness*:

> *Completeness*: if a physical effect *E* has a cause at *t*, *E* is completely caused by a physical cause *P* at a given time *t*.

Completeness does not emphasize the fact that *P* is *nomologically sufficient* for *E*, but rather emphasizes the fact that *P suffices* to cause *E*, or *P* is enough to cause *E*, so 'no other event should be necessary for the occurrence' of *E* (Kim 1989, 82; cp. Moore 2017; Papineau 2009, 59). It is possible to capture this *Completeness* intuition within an indeterministic context:

> *Indeterministic Physical Causal Completeness*: if a physical effect *E* has a cause at *t*, *E* is completely caused to occur or not occur by indeterministic physical cause *P* at a given time *t* (cp. Tse 2018, 254; Papineau 2009, 59; Bennett 2008, 281).

Indeterministic Physical Causal Completeness aligns with *Physical Indeterminism*, which already states that it is physical cause *P* that indeterministically causes *E* to occur or not, though *Indeterministic Physical Causal Completeness* adds that the indeterministic physical cause *P* completely suffices to indeterministically cause *E* to occur or not. I shall further unpack this definition in Section 4.2.

The *Nonreductive* component of *Nonreductive Physicalism* is fairly straightforward, as it simply repeats the claim made in *Supervenience* that mental state *A* is distinct from its physical base *P*:

> *Nonreduction*: agential properties *A* are distinct from physical properties *P*.

While *Nonreduction* typically states that *mental* properties *M* are distinct from physical properties *P*, I use *agential* properties *A* instead, in order to align with the work completed in Section 1. *Nonreduction* is supported by, most relevantly, the principle of *Multiple Realizability*, according to which *A* can be realized by various physical bases *P* or P_2 or P_3. For example, hunger can be realized differently in different organisms, and Jane's hunger can be realized differently in Jane over time. *Multiple Realizability*, combined with intuitive distinctions between the mental and physical, lead many to find *Nonreduction* 'obviously true' (Bogardus 2013, 446).

Some frame *Nonreduction* in terms of distinct *events A* and *P* (Kim 2005, 42), while others frame *Nonreduction* in terms of distinct *properties A* and *P* of the same event (Fodor 1974, 100). While I shall follow most

nonreductive physicalists in emphasizing the latter view, nothing of substance rides upon this selection. On this latter view, *A* is an agential property of an event that is distinct from the physical properties *P* of that event. Pablo's decision to go for a walk has both physical properties such as neural processing occurring in his head, and agential properties such as his conscious act of deciding to go for a walk. In Section 4, this definition will be applied to both the cause and the effect, such that both have physical and distinct agential properties.

Nonreductive physicalists typically want more than agential properties *A* that are distinct from their subvening physical properties *P*. After all, the oft-maligned doctrine of epiphenomenalism is consistent with the view that mental properties supervene on physical properties. So, nonreductive physicalists add a principle of *Mental Causation*:

Mental Causation: agential properties *A* of an event sometimes cause effects *E*.

While *Mental Causation* typically states that *mental* properties *M* of events have causal efficacy, I use *agential* properties *A* instead, in order to once again align with Section 1. Nothing of consequence is lost in this translation. *Mental Causation* is supported by appeals to common sense intuitions, as well as argumentation suggesting that mental causation is needed as a foundation for the moral responsibility of agents. For these reasons, most agree with Jerry Fodor that abandoning *Mental Causation* would amount to 'the end of the world' (Fodor 1989, 77).

In order to satisfy *Mental Causation*, the event must cause in virtue of its agential properties, a view which is sometimes called mental quausation. Some nonreductive physicalists reject mental quausation, instead preferring to say that while agential properties, types or descriptions of events are distinct from physical properties, types or descriptions of events (*Nonreduction*), the event is causally efficacious as itself (*Mental Causation*), not as physically described or agentially described (Davidson 1993). Most respond, however, that events seem to cause in virtue of certain properties while other properties are causally irrelevant (Kim 1993; Sosa 1993). To borrow an example from Fred Dretske (1988), when the opera singer sings 'Break!' at a very high pitch, it is in virtue of the pitch, not in virtue of the word sung, that the glass breaks. Likewise, the event causes in virtue of either its agential properties or physical properties. The event must cause in virtue of its agential properties, or the agential properties are causally irrelevant and *Mental Causation* fails (cp. Honderich 1982, 63; Horgan 1989, 48–51).

Combining *Mental Causation* with *Nonreduction* yields *Nonreductive Mental Causation,* according to which effect *E* sometimes has an agential cause *A* that is distinct from its physical cause *P*. This model of autonomous mental causation is considered the crown jewel of nonreductive physicalism (Bernstein 2016, 25; Kim 2005, 159), where agential causes, in virtue of being agential causes, sometimes bring about effects. Once *Nonreductive Mental Causation* is yoked together with the prior doctrine of *Physicalism*, we arrive at the nonreductive physicalist picture that *E* has both a physical cause *P* that completely suffices for causing *E*, and sometimes has a distinct agential cause *A* which supervenes upon *P* as well.

3. Nonreductive physicalist libertarian free will

Having outlined the contours of libertarian free will and nonreductive physicalism, it is now time to blend these positions together and provide motivation for such an admixture.

It is easiest to blend the two views together by beginning with *Nonreductive Physicalism*, according to which *E* has both a physical cause *P* that completely suffices for causing *E*, and a distinct agential cause *A* which supervenes upon *P*. Transposing *Nonreductive Physicalism* to the context of *Indeterminism* central to libertarian free will yields an *Indeterministic Nonreductive Physicalism* model: whether effect *E* occurs or not is completely indeterministically caused by *P*, and has a distinct agential cause *A* that supervenes upon *P*. Finally, by importing the *Agential Indeterminism* that defines libertarian free will we arrive at:

> *Nonreductive Physicalist Libertarian Free Will*: whether effect *E* occurs or not is completely indeterministically caused by *P*, and has a distinct agential cause *A* that supervenes upon *P* and indeterministically causes *E* to occur or not.

This nonreductive physicalist libertarian free will satisfies the requirements of both libertarian free will and nonreductive physicalism. Since agential cause *A* contributes to whether *E* occurs or not, *Agential Causation*, *Mental Causation* and *Agential Indeterminism* are satisfied, where the latter secures libertarian free will. Since *A* is distinct from *P*, *Nonreduction* is satisfied, and since *A* is a distinct indeterministic cause of *P*, *Mental Causation* and *Nonreductive Mental Causation* are satisfied. *Supervenience* is satisfied, since *A* supervenes upon *P*. *Indeterministic Physical Causal Completeness* is also preserved in nonreductive physicalist libertarian free will,

as *P* completely indeterministically causes whether *E* occurs or not – not a bad haul.

Nonreductive physicalist libertarian free will also solves certain problems plaguing two other contemporary models of combining libertarian free will with *Physicalism* in the mental causation debate. First, some yoke libertarian free will with reductive physicalism (Balaguer 2014a; Balaguer 2014b; Balaguer 1999; Franklin 2012, 401–403; Gebharter 2020, 15). According to this model, on *Physical Indeterminism*, *P* indeterministically causes *E* to occur or not. By rejecting *Nonreduction*, it is possible to say that *A* is identical with *P*, so *A* indeterministically causes *E* to occur or not, securing *Agential Indeterminism*. So, this model secures libertarian free will via endorsing *Agential Indeterminism*, while also securing *Physicalism*, though of a reductive sort. As Balaguer summarizes:

> the decision just was the relevant bunch of quantum events. But if the decision just was the relevant bunch of quantum events, and if the quantum events jointly settled which option was chosen, then the decision settled which option was chosen. (Balaguer 2014b, 91; cp. Balaguer 2014a, 83; Balaguer 2014a, 56–57)

Balaguer's reductive physicalist libertarian free will faces the following difficulty. By rejecting *Nonreduction*, it is the case that only *P* indeterministically causes *E*, there is nothing more than *P* that causes *E*, there are no distinct agential causes *A* influencing whether *E* occurs or not. But agents have no control over the physical cause *P* that indeterministically causes *E*.[3] *P* indeterministically causing *E* is a physical process within (assemblies of) neurons in the agent's brain – say the opening of voltage-gated calcium channels within axon terminals indeterministically causing vesicles in those neuron terminals to fuse to cell membranes. Agents cannot even locate these calcium channels in their brains, let alone imagine how to influence whether these calcium channels cause vesicles to fuse or not. Without control over whether *E* occurs or not, agents do not freely cause *E* to occur (Franklin 2015, 755; Griffiths 2010, 45; Balaguer 2014a, 72; Lemos 2018, 107). This inference from 'no control' to 'no free will' is intuitive: of course, if Jan does not control whether she robs a

[3]It is common to deploy a remote-to-local strategy to show that agents lack control over indeterministic physical processes in their brains (Pereboom 2001, 50ff; Shabo 2014; Haji 2000, 333–336; Van Inwagen 1983, 134–142; McCall 1985, 672–674). On this strategy, it is universally granted that agents have no control over indeterministic physical processes – say an atom that decays – in remote space. But, by slowly bringing the indeterministic processes closer to brains, it becomes clear that there is no substantial difference between indeterministic physical processes in remote space and indeterministic physical processes in brains. This being the case, agents have no control over the indeterministic physical processes in their brains either.

bank or not, she does not freely bring it about that she robs the bank. Balaguer's model, therefore, fails to provide the agent with enough control over *E* to secure libertarian free will. Similar concerns about Balaguer's reductive physicalist libertarian free will are raised by others (Moore 2022b; Lemos 2018, 89–91; Kane 2014, 55).

It is possible to object that since *P* is identical with agential cause *A*, *P* indeterministically causing *E is A* indeterministically causing *E*, which secures *Agential Indeterminism*. In Balaguer's words: 'it seems to me that if the event that settles the matter is the agent's conscious decision, then, at the very least, there is a sense in which the agent does settle it' (Balaguer 2014b, 83). At best Balaguer's model secures passive control rather than active control (cp. Moore 2022b; Moore 2022c; Murday 2017, 1325; Caruso 2015, 25; Shabo 2014, 162; Schlosser 2014, 379). Passive control occurs when some event *C* is the cause of *E*, so *C* has passive control over *E* in virtue of *C* being the thing that causes *E*. Plum, though manipulated by a neuroscientist to reason himself into killing White, has passive control over killing White in virtue of being the one who killed White. A drug addict has passive control over taking more drugs in virtue of being the one who takes the drugs he desires. As these examples show, however, passive control is not sufficient for genuine agential control.

What is needed is active control, which occurs when some event *C* not only causes *E*, but that *C* causes *E* is not itself caused by factors beyond the agent's control. The drug addict lacks active control because, though he takes the drugs he desires, unconscious chemical processes in his brain over which he lacks control cause him to take the drugs he desires. Plum lacks active control because, though he kills White for his own reasons, a manipulating neuroscientist over which he lacks control causes him to reason in such a way as to kill White. Likewise, on Balaguer's reductive physicalist model, an agent lacks active control because, though her reasons are the causes of her decisions, indeterministic microphysical processes in her brain, over which she lacks control, causes her to reason to her decisions. As Helen Steward explains: 'if desires and intentions are just names for certain neural states … it seems to be those neural states, not me, that are calling the shots … what I will do, it would seem, is settled by them. It is not settled by me' (Steward 2012, 228; cp. Moore 2022b; Moore 2022c; Rigato 2015, 110; Pereboom 2001, 72; Berofsky 2012, 128–129).

This dire consequence is avoided by substituting out reductive physicalism for *Nonreductive Physicalism*. On *Nonreductive Physicalism*, whether

E occurs or not is completely indeterministically caused by *P*, but also has a distinct agential indeterministic cause *A* that supervenes upon *P* as well. Since *A* is distinct from *P* (from *Nonreduction*), and *A* contributes to whether *E* occurs or not (from *Mental Causation*, *Agential Causation*, *Agential Indeterminism* and *Nonreductive Mental Causation*), it is not the case that *P* is the only indeterministic cause of whether *E* occurs or not. So, while agents have no control over the influence *P* has on whether *E* occurs or not, agents have some control over the influence that their distinct agential causes *A* have on whether *E* occurs or not, so it is not the case that agents lack control over the causes of *E*, so it is not the case that agents lack free will over *E*.

The second common way of combining libertarian free will with some form of physicalism has recently been proposed by Christian List (List 2019; List 2014), though others suggest it as a possibility as well (Backmann 2013; Beforsky 2010, 9; Vihvelin 2000). On this model, libertarian free will is combined with a *Nonreductive Physicalism* that endorses *Physical Determinism*. This seems like an unusual, even incoherent, admixture since *Physical Determinism* and the *Alternative Possibilities* contained within *Agential Indeterminism* seem to be at odds: if effect *E* is determined to occur by physical cause *P*, where *P* also determines that *A* occurs, how can *A* influence *E* to either occur or not occur (Franklin 2013, 123; Weber 2005, 667–668; Wiggins 1973, 52)? List resolves this difficulty by emphasizing *Multiple Realizability*. Since *A* can be realized by a variety of different physical bases *P* or P_2, it is consistent with *Physical Determinism* that each of these different bases can deterministically necessitate a slightly different effect *E* or E_2, such that *A* can occur, and different effects *E* or E_2 can still occur, securing *Alternative Possibilities*. As List summarizes: 'Each agential state corresponds to an equivalence class of physical states … that can render it consistent with multiple distinct physical sequences of events … it follows that more than one course of action is possible for the agent' (List 2014, 162; cp. List 2019, 92).

List's proposal faces two problems. First, most advocates of libertarian free will do not recognize it as a genuine libertarian model of free will since it endorses *Physical Determinism*, a doctrine virtually anathema to libertarian free will. Secondly, on List's view, at a particular instant the agential state *A* must actually be realized by some one physical state, say *P*. This is the case because some physical base must actually occur at *t* to determine that *A* will even occur at *t*, since *A* is dependent upon some *P* determining it (from *Supervenience*). This particular base *P* that is locked in place at *t* determines that only one physical effect *E* can

possibly occur (from *Physical Determinism*), which locks into place only one possible action as occurring. So, the occurrence of *A* does not lead to the possibility of different actions occurring after all. This result violates *Alternative Possibilities*, and hence fails to secure libertarian free will (cp. Gebharter 2020, 13–14; Elzein and Pernu 2017, 232; Pereboom 2001, 70–71).

These problems can be resolved by substituting in *Physical Indeterminism* for *Physical Determinism*. Endorsing *Physical Indeterminism* allows for a more recognizably libertarian form of libertarian free will within a nonreductive physicalist metaphysic. And, on *Physical Indeterminism*, when some particular realizer *P* is locked in as the base of *A* in order for *A* to occur, this *P* does not necessitate the occurrence of *E*, rather, *E* could still occur or not occur. Thus, *A* can still lead to *E* occurring or not occurring, re-establishing *Alternative Possibilities*, which preserves *Agential Indeterminism*, which preserves libertarian free will.

Where List goes wrong is to posit a nonreductive physicalist libertarian free will that endorses *Physical Determinism*, and where Balaguer goes wrong is to posit an indeterministic physicalist libertarian free will that rejects *Nonreduction*. What is needed is a nonreductive physicalist libertarian free will model that assumes *Physical Indeterminism*, as is developed here.

4. Objections

This model of nonreductive physicalist libertarian free will faces numerous objections. In this section, I outline and respond to three of the most pressing concerns. In order to respond to these objections, I will first introduce relevant expansions to several principles discussed above. First, while I heretofore took the effect *E* to stand for any particular effect in the principles defined above, it is important to now distinguish two specific relevant effects. First, there is the occurrence of effect *P**, which is the occurrence of the physical properties *P** of the event, such as the neural processes *P** of the decision to walk, or the bodily movements *P** of the act of walking. Second, there is the occurrence of the supervening effect *A**, which is the occurrence of the actional properties *A** of the event, such as the events being the agent's decision *A** to walk, or the bodily movement being the agent's act *A** of walking. This separation of the physical properties and actional properties of the effect is not only consistent with the parallel separation of the physical properties and agential properties of the cause already made above, but is

common in the literature as well (Moore 2022a, 62; Marras 1998, 447; Horgan 1989, 48ff).

The separation of the effect into the event's physical properties *P** and its actional properties *A** introduces two different ways that *A* can have causal efficacy. First, it is possible that *A* contributes to whether the actional properties *A** of the event occur or not – call this *Actional Causation*. *Actional Causation* states that agential causes *A*, such as Pablo's conscious deliberation about whether to go to the bar or not, has actional effects *A**, such as causing Pablo's bodily movement of walking to the bar to be Pablo's act *A** of walking to the bar. Second, it is possible that *A* contributes to whether the physical properties *P** of the event occurs or not – call this *Downward Causation*. *Downward Causation* states that agential causes *A*, such as Pablo's conscious deliberation about whether to go to the bar or not, has physical effects *P**, such as influencing whether Pablo's body moves towards the bar or not. In what follows I handily establish *Actional Causation*, which technically satisfies *Agential Indeterminism*. I also show that *Downward Causation* can be established as well, if certain plausible concessions are made.

4.1. Widerker's supervenience argument

The first objection worth pursuing is what David Widerker calls the Supervenience Argument against nonreductive physicalist libertarian free will (Widerker 2016, 298), which demonstrates 'the inconsistency of libertarian freedom with the highly popular doctrine of nonreductive physicalism' (Widerker 2016, 304). According to Widerker, libertarian free will involves *directly* free actions, where agential cause *A* immediately causes action *A** (Widerker 2016, 298). That is, it is not the case that *A* causes *A** by *A* causing some intermediate cause which causes *A**. Using Widerker's example, take *A** to be the directly free action of deciding to stay home, rather than go for a walk. This decision *A**, however, supervenes upon some physical base *P**, which means that *A** depends upon the occurrence of *P** (from *Supervenience*). So, *A* can only cause *A** by causing some intermediate cause *P** which causes *A** (Widerker 2016, 301), so *A** is not a directly free action. Since *Supervenience* is true of every effect *A**, no *A* ever directly causes any *A**, so there are no directly free actions, undermining libertarian free will. As Widerker summarizes:

> Given that the performance of [*A**] is contingent upon the occurrence of its supervenience base [*P**], it stands to reason that to be able to perform [*A**]

> [the agent] must be able to bring about [*P**]. But if [the agent] brings about [*P**], then, … it follows that the event which brings about [*P**] also causes [*A**] to occur, thus nullifying [*A**]'s status of being a libertarianly free action. (Widerker 2016, 302–303)

Widerker's concern rests upon the claim that *A* can only cause *A** by causing *A**'s base *P** to cause *A**. While this type of judgment has some precedence (Kim 2005, 40; Kim 1998, 42), it also faces criticism. So-called autonomists reject this view and argue instead that *A* can cause *A** directly, without even being able to cause *P** (Pernu 2016; Zhong 2014). Others note that the supervenience relation is considered a non-causal dependence relation (Engelhardt 2017, 34–35; Thomasson 1998, 189–190), in which case *A* does not cause *A** by causing *P** to cause *A**, simply because *P** does not cause *A** in the first place, leaving it open that *A* is the direct cause of *A**. More generally, although *P** is a necessary condition for *A**, this does not entail that *A* must cause *P** to bring about *A**. Jenni wants to breastfeed her baby, but she cannot do so until her hormones begin producing milk, which she lacks control over. But once her hormones do their work, she can now breastfeed her baby. It would be odd to say Jenni cannot cause her baby to feed simply because she does not first have the power to cause her hormones to produce milk (cp. Bailey 2020, 32–35). Rather, all that is needed is for her to wait for those necessary conditions to be in place, then she can feed her baby.

Even if Widerker is correct that *A* must cause *P** to bring about *A**, I shall argue below that *A* can directly cause the event that has physical properties *P** to be the action *A**. This is the principle of *Actional Causation*, and it will be defended below. Moreover, I shall also argue that *A* may be able to directly contribute to the event having physical properties *P**. This is the principle of *Downward Causation*, and it will be discussed below. If either or both of these principles are established, then Widerker's concerns are overcome as well.

4.2. The bottom-up objection

There is also a Bottom-Up Objection to nonreductive physicalist libertarian free will. While the argument is variously articulated (Bailey and Rasmussen 2020, 204–206; Berofsky 2012, 128–129; Capes 2010, 131–133; 71-72; Turner 2009, 570ff; Pereboom 2001, 71–72; Merricks 2001, 156–158; Dupre 1996, 389; Cover and O'Leary-Hawthorne 1996, 58–60), the general frame is as follows: *P* indeterministically causes some base *P** of *A** (from *Indeterministic Physical Causal Completeness*), where this base

*P** determines that the supervening effect *A** will occur (from *Supervenience*). Since the agent has no control over the processes running from *P* to *P** to *A**, and these are the processes determining *A** to occur, the agent has no control over *A**, so the agent lacks free will over *A**, violating *Agential Indeterminism*, leaving libertarian free will false. As Justin Capes summarizes:

> the bottom-up threat to free will: … every action one performs supervenes upon what one's atoms do or are like. No one has a choice about what one's atoms do or are like. Therefore, no one has a choice about what actions one performs, in which case no one has free will. (Capes 2010, 133)

There are two ways to dodge the Bottom-Up Objection. The first is to demonstrate how *A* causes *A**, thereby satisfying *Actional Causation*. On this view, *A* does not influence whether *P** occurs or not, rather *A* directly influences whether *A** occurs or not. Pablo's overt bodily movement *P** of walking to the bar is completely caused by *P*, but this bodily movement *P** will only be Pablo's action *A** of going to the bar if caused by Pablo's conscious deliberations *A*. This position is strengthened by the *Causal Theory of Action*, according to which a necessary condition for a bodily movement to be an action is for it to be caused by an agent's reasons. Hence, if Pablo had not deliberated about and chosen to go to the bar, but instead in his sleep his musculoskeletal processes caused his body to start sleepwalking to the bar, this would not be Pablo's act of walking to the bar. So, on pain of violating the *Causal Theory of Action*, *Actional Causation* must be true.

There are two issues with this resolution. First, there may be a conflict with *Supervenience*. Namely, the occurrence of *P** metaphysically necessitates the occurrence of *A**, so if *P** occurs, it is guaranteed that *A** occurs (from *Supervenience*). But, *Actional Causation* suggests that *A** will not occur if *A* does not cause *A** to occur. Fortunately, this apparent tension between the fact that *P** necessitates *A** and the fact that *A* must cause *A** is dissolvable. Since *P* metaphysically necessitates *A* and *P** metaphysically necessitates *A** (from *Supervenience*), it is impossible for *P** to necessitate *A** without *A* already occurring, since *A* was necessitated by the base *P* that caused *P** to occur in the first place. So, *A* is present to serve as the necessary agential cause of *A** (satisfying *Causal Theory of Action*), while *P** is present to metaphysically determine that *A** occurs (satisfying *Supervenience*). The situation is similar to a case where the subvening DNA damage at *t* metaphysically necessitates the skin's intrinsic macroproperties of being burnt and being red, but that

the burn is a sunburn requires that it was caused by the sun. The same situation appears for externalists about mental content, where the physical base *P** determines the belief will occur, but does not determine what the content of the belief is about (cp. Moore 2022a, 69; Bennett 2003, 484).[4]

The second possible concern with solving the Bottom-Up Objection with only *Actional Causation* is that it renders it impossible for agential causes *A* to influence bodily movements *P**. This is a peculiar result – Pablo's deliberations can cause his decision to go to the bar, but cannot make his body walk there! To avoid this consequence, it is also possible to dodge the Bottom-Up Objection by endorsing *Downward Causation* as well, suggesting that agential causes *A* contribute to whether the physical properties *P** of the event occur or not. Pablo's deliberations about going to the bar not only turn his walking behaviour into his action, but can also causally contribute to his walking behaviour in the first place! This *Downward Causation* model is the preferred solution of several of those articulating the Bottom-Up Objection (Merricks 2001, 158; Dupre 1996; Cover and O'Leary-Hawthorne 1996).

There is one substantial concern with maintaining *Downward Causation* as well. Namely, it seems to threaten *Indeterministic Physical Causal Completeness*. *Indeterministic Physical Causal Completeness* says that *P** is completely indeterministically caused by *P*, where *Downward Causation* stipulates that *P** has a distinct agential cause *A* as well. So, it seems that either *P* is not complete as an indeterministic cause of *P**, or perhaps *P** faces overdetermination worries.

I will deal with the overdetermination issues below, and consider now the possibility that *P* is not complete as an indeterministic cause

[4]The Bottom-Up Objection raises two additional worries. First, isn't it possible to reformulate the Bottom-Up Objection and apply it to the agential cause *A* instead of the effect *A**? Agential cause *A* is itself determined by its physical base *P*, which was itself caused by some prior physical process that agents lack control over, so agents lack control over their agential causes *A*, so agents do not freely cause their actions. This reformulated Bottom-Up problem is solved by reformulating the reply as well. Namely, *A* itself had causal contributions from some prior agential cause A_{-1} as well, where the agent has some control over A_{-1}, so the physical base *P* of *A* is not the sole determinant of *A*. Possibly, if the *Downward Causation* principle stands as well, agential deliberations A_{-1} causally contribute to the occurrence of *P* as well, so *Agential Indeterminism* is true even if the agent cannot control the fact that *P* metaphysically necessitates *A*. Here is the second additional worry: according to the Bottom-Up Objection, *P** determines *A** (from *Supervenience*). This fact alone calls into question *Physical Indeterminism* for effect *A**, as *A** is determined with metaphysical necessity by physical base *P**. This calls into question *Agential Indeterminism* for effect *A**, as *A** is determined to occur. The same replies are still available. *A** is not only determined by its base *P**, but *A** must also have an agential cause *A*, so *A** is not determined by metaphysical necessity from *P**. And, on the plausible *Downward Causation* view, *A* can influence whether *P** occurs or not, so *A* can influence whether *A** occurs or not.

of *P**. It is possible to salvage a suitably modified, and ultimately inevitable, version of *Indeterministic Physical Causal Completeness*. Here is the suitable modification: on *Supervenience*, it is *P* that determines that *A* will occur in the first place, so *P* is in fact enough for generating all the factors (i.e. *P* and *A*) that influence whether the effect occurs or not. Call this *Wide Indeterministic Physical Causal Completeness,* where *P* completely indeterministically causes *P** to occur or not, not by *P* alone completely indeterministically causing *P** to occur or not, but by *P* determining *A* to occur as well, where *P* and *A* jointly indeterministically cause *P** to occur or not. This model seems consistent with the *Completeness* principle embedded in *Indeterministic Physical Causal Completeness*, as it is the case that *P* is enough for, and suffices for, and completely gives rise to all the indeterministic causes of *E*. To use an example of this model, the fire's heat necessitates smoke, which both together kill the victim, but the fire completely yielded the contributing smoke, hence the wider sense in which the fire is completely the cause of the victim dying.

Now for the ultimately inevitable part. At first glance, settling for *Wide Indeterministic Physical Causal Completeness* seems unsatisfying. Surely *Indeterministic Physical Causal Completeness* is only established when *P* alone and by itself is the complete indeterministic cause of *P**, not because *P* gives rise to *A* such that *P* and *A* jointly cause *P**. In other words, *Indeterministic Physical Causal Completeness* is only satisfied if the counterfactual 'Had *P* occurred without *A*, *P** would have still occurred' is (non-vacuously) true. It is important to remember, however, that nonreductive physicalists endorse the metaphysical necessity of the *Supervenience* relation. This means that there are no possible worlds in which *P* occurs without *A,* so the counterfactual 'Had *P* occurred without *A*, *P** would have still occurred' is vacuous. The wish for *P* to cause *P** all by itself is metaphysically impossible to fulfill once it is granted that *P* metaphysically necessitates *A*. Given this fact, one way of salvaging the view that *P* is still considered the complete indeterministic cause of *P** is to note that it is *P* that determines *A*, and they together indeterministically cause *E*. Therefore, *Wide Indeterministic Physical Causal Completeness* should not be considered an unpalatable concession, but an opportunity for the nonreductive physicalist to establish *Indeterministic Physical Causal Completeness* over and against the fact that *Supervenience* renders it impossible for *P*, without *A*, to cause *P**.

4.3. The overdetermination objection

There is also an Overdetermination Objection. Traditionally, nonreductive physicalists face the following problem: *P** is caused by a sufficient physical cause *P*, leaving no work for agential cause *A* to do, thereby excluding *A* from causally impacting *P** (cp. Kim 2005, 39–45). This worry is rooted in an exclusion principle, according to which there cannot be more than a single sufficient cause for any single effect (Kim 2005, 42). Perhaps nonreductive physicalist libertarian free will faces the following similar worries: (1) the occurrence of *A** is completely determined by the occurrence of *P**, leaving no causal work for *A* to do in bringing about *A**, thereby excluding *A* as an indeterministic cause of *A**; (2) whether *P** occurs or not is indeterministically caused completely by *P*, leaving agential cause *A* with no work to do in bringing about *P**, thereby excluding *A* as an indeterministic cause of *P**. Indeed, proponents of indeterministic causation typically also advocate for screening off spurious events that do not influence the probability of an effect occurring. On this view, *A* can be screened off as spurious if the probability of *P** occurring, given *P* and *A*, is the same as the probability of *P** occurring, given *P*, as this would show that *A* does not increase the probability of *P** occurring (Gebharter 2020; Suppes 1984).

There are several responses here. First, on the probability raising issue, as discussed in Footnote One, it is not clear that this chance-raising model of indeterministic causation is correct, so it is not clear that causes that do not raise the probability of *P** can be screened off. Here is an example of the common complaint that indeterministic causation can occur without probability-raising: Team Blue has a 43% chance of winning the tug of war, but at the last minute two new players join, Brett joins Blue, and his identical twin Jett joins Red. After these players are added, Blue still has a 43% chance of winning the tug of war, since Jett and Brett have the same strength. The probabilities do not change, but assuming that team Blue wins, Brett still contributes to the victory.[5]

Version (1) of the exclusion problem is a threat to *Actional Causation*. According to *Actional Causation*, *A* causes *A**, but this exclusion problem shows that *P** determines *A**, excluding *A* from causing *A**. Fortunately, the pieces are already in place to respond to this challenge. It is already established that *A** cannot happen without agential cause *A*.

[5]Some even go so far as to suggest that *P* fixes the probability of *P** occurring (satisfying *Indeterministic Physical Causal Completeness* on a probability-raising model), but *A* settles whether or not *P** actually occurs (satisfying *Agential Indeterminism*) (cp. Rigato 2018, 388–392). This possibility shows that, even if *A* fails to raise the probability of *P**, it is not established that *A* does not influence whether *P** occurs or not.

According to the *Causal Theory of Action*, if *A* is not present as a cause, then the event with physical properties *P** is not an action, so lacks actional properties *A**, rather it remains a mere bodily movement. If Pablo's arm is raised *P**, this arm rising is not his act of him raising his arm *A** unless this arm rising is caused by his intentions *A* to raise his arm.

Does this mean that *Supervenience* fails, as *P** does not completely determine that *A** occurs? The same two responses are available again. First, probably not, because *Supervenience* implies that *P* metaphysically necessitates *A* as well, so when *P** determines *A**, *A* is already in place as well, satisfying both *Supervenience* and *Actional Causation*. Second, possibly but benignly yes. While *Supervenience* takes *P** to metaphysically necessitate all the supervening intrinsic macroproperties of the effect, *Supervenience* does not take *P** to metaphysically necessitate extrinsic properties of the effect such as what the effect was caused by. As the burn being a sunburn is determined by whether the sun caused the burn, so the bodily movement *P** being an action *A** is determined by whether *A* caused it. This does not undermine *Supervenience*, but merely highlights the commonly accepted limits placed upon *Supervenience*.

Version (2) of the exclusion problem is a threat to *Downward Causation*. According to *Downward Causation*, *A* causes *P**, but this exclusion problem shows that *P* completely causes *P**, excluding *A* from causing *P**. Fortunately, the pieces are already in place to respond to this challenge as well. Assuming *Supervenience*, it is metaphysically impossible for *P* to occur without *A*, so it is metaphysically impossible for *P* without *A* to completely cause *P**. Rather than *A* being excluded as a cause of *P**, *Supervenience* metaphysically necessitates the inclusion of *A*. One can object: perhaps *A* is like an epiphenomenal shadow, necessarily present but failing to causally contribute to *P**. In order to establish that *A* makes no causal contribution, it would be necessary to establish that *P*, without *A*, still causes *P** by itself. But it is impossible to test the truth of this possibility. Given *Supervenience*, the counterfactual of 'Had *P* occurred without *A*, *P** would have occurred' is vacuous, so cannot be established as (non-vacuously) true. There are, however, independent reasons for thinking that *A* causally contributes to *P**, namely to satisfy the well-motivated principles of *Agential Causation*, *Mental Causation*, and *Agential Indeterminism*.

Does this mean that *Indeterministic Physical Causal Completeness* fails, as *P* is not the complete indeterministic cause of *P**? Three responses are available, two of which were previously discussed. First,

it is impossible to test this possibility. Since the relevant counterfactual 'Had *P* occurred without *A*, then *P** would have occurred' is vacuous, it is impossible to establish whether this counterfactual is (non-vacuously) true or false. This neither falsifies nor supports *Indeterministic Physical Causal Completeness*, but rather simply shows the implications that endorsing *Supervenience* has on establishing *Indeterministic Physical Causal Completeness*. Second, by endorsing the expansion to *Wide Indeterministic Physical Causal Completeness*, it is the case that *P* completely causes *P** in the wider sense that it is *P* that necessitates *A* in the first place, so the occurrence of *P* guarantees the occurrence of all the factors involved in causing *P** to occur or not. Third, some will insist the inclusion of *A* as a cause of *P** renders *Indeterministic Physical Causal Completeness* false, hence nonreductive physicalism false. If so, then a slide towards a supervenience-based version of dualism would be appropriate. What is essential is that *A* makes a distinct contribution to the occurrence of *P**. I have argued here that nonreductive physicalism has the resources to satisfy this requirement, but some may insist that only a supervenience-based version of dualism can satisfy this requirement.

In summary, contrary to the initial assessments of some, it is possible to yoke libertarian free will with nonreductive physicalism. Such an admixture supplies the benefits of the popular nonreductive physicalist metaphysic, while also supplying the agential indeterminism central to libertarian free will. Granted, it appears that both nonreductive physicalism and libertarian free will must be suitably stretched at times – clarifying the scope of supervenience at times, expanding the notion of physical causal completeness at others, and having difficulty satisfying downward causation as well. Some may balk at stretching the seams of nonreductive physicalism and libertarian free will in these ways, but this stretching is both independently principled and helps to achieve the substantial result of containing libertarian free will within a nonreductive physicalist metaphysic.

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