Zombies in the Basement? Ghosts in the Floorboards?

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0. Introduction

Do the hard problem of consciousness and the simulation argument potentially resolve each other? Here we will argue for four possible views: that consciousness may be possible only (a) outside of, (b) inside and/or outside of, (c) inside of, or (d) interfacing with simulations. The first two of these views have been developed at length by David Chalmers and are used as jumping off points to introduce and develop the latter two views here. If any one of these views could be proven true, it would simultaneously both support a kind of account of properties of consciousness and also provide a kind of sign as to whether or not we are indeed living in the kind of immersive computer simulation that Nick Bostrom hypothesizes about. However, given that none of these views are proven true but all are plausible, these considerations should tend to neutralize our credence that we are either simulated or not simulated, by themselves giving us no sign one way or the other. Thus, with Chalmers, we conclude that consciousness is not a sim-sign; but, against Chalmers, we arrive at this conclusion without needing to assume any form of substrate-independence about the nature of consciousness.

1. Antecedents

At least two antecedent concepts must be established: the "hard problem of consciousness" and the "simulation argument".

a. The Hard Problem of Consciousness

First, David Chalmers' "hard problem of consciousness", the problem of giving an intuitively satisfying account of "what it is like" to be something (1996). Although there are many proposed theories of consciousness, the hard problem makes almost every explanation of consciousness feel somewhat inadequate (Van Gulick 2022). This is because any accounts of consciousness interacting with the material world does not appear to account for the possibility of philosophical "phenomenal zombies": creatures that are materially identical but experientially different from other creatures (1996, p. 94-99). Particularly, physicalist explanations of consciousness seem to not take seriously the possibility of zombies, taking the qualitative aspects of the mind/body problem as not in need of explanation (1996, pp. 106-108). As Chalmers puts it, "A physical account, alone, is not *enough*" (1996, p. 108). Thus, a kind of neo-Cartesian dualism, in which phenomenal properties supervene upon physical properties, may be the least unsatisfactory explanation (Descartes, 2008). Consciousness seems to be composed of irreducibly phenomenal (non-physical) properties (Chalmers, 1996, p. 140-149), and thus supervenience seems to uniquely provide *appropriate kind* of explanation that could explain consciousness (Douven 2021).

b. The Simulation Argument

Second, Nick Bostrom's "simulation argument" makes it seem probable that we are living in a computer simulation (2003). This conclusion follows from the assumption that intelligent civilizations eventually develop all possible technologies (Bostrom, 2009), before they reach some limiting termination point of science (Horgan, 1996), enabling them to make "ancestor-simulations" (2003, p. 248) of themselves in vast quantities, and the assumption that observers are either in the "basement-level reality" (2003, p. 253) or in one of these simulated realities. Because the simulated realities can outnumber the basement reality (many-to-one), any given observer is probably in a simulated reality (2003, p. 249). However, besides for these philosophical considerations, the question does not even seem like the kind of question that is tractable through mere empiricism. This is because the simulation itself is a kind of Baconian idol or Cartesian demon, precluding us from reliable knowledge via observation (Bacon, 1960; Descartes, 2008). Furthermore, the whole project of creating ancestor simulations could be cut short anyways if the techno-pessimists are right and conscious agents are reduced or destroyed before ever developing the technology (Heidegger, 1977; Lyotard, 1984). Thus, it is of especial interest to propose and evaluate sim signs or nonsim signs (evidences for or against the simulation hypothesis) to give us some credence as to whether we are indeed in a simulation or the basement.

2. Plausible Views on the Consciousness/Simulation Relation

Both the hard problem of consciousness and the simulation argument are reconsidered by David Chalmers in his recent book, *Reality+* (2022). Chalmers speculates about the relationship between consciousness and simulation and considers the varying plausibility of specific views regarding that relation. Chalmers considers two views in particular, *a basement-only substrate-dependent* view and a *structural substrate-independent* view, considering the former weaker than the latter, we will further argue that there are at least two more views worth considering, a *simulation-only substrate-dependent* view and a *relation-only substrate-independent* view, that Chalmers passes over. These four views (summarized in Table 1) are perhaps exhaustive of plausible views of the consciousness-simulation relation, given the quadratic concept space: two by two, consciousness/unconsciousness by basement/simulation—unless perhaps we are full phenomenal eliminativists, like Daniel Dennett, in which case there is no consciousness-simulation relation at all (Dennett, 1991).

Table 1: Views on the Possible Relations between Consciousness and Simulation

Supertype	***Substrate-Dependence***		***Substrate-Independence***	
Type	**Basement-only Substrate-Dependence**	**Simulation-only Substrate-Dependence**	**Structural Substrate-Independence**	**Relation-only Substrate-Independence**
Conscious Basement	×		×	×
Conscious Simulation		×	×	

In what follows, we describe these views, their plausibility, and their implications.

I. Two Substrate-Dependent Views

Chalmers considers the view of "substrate-dependence": consciousness is a supervenient property of substrate and thus must be realized only in specific substrates and cannot be realized in other substrates.

a. Basement-only Substrate-Dependence

Chalmers pays particular attention to the *basement-only* substrate-dependent view that consciousness could be impossible in simulation substrate. Consciousness would thus be a "nonsim sign": evidence that we *are not* in a simulation (2022, p. 93). As Chalmers phrases it, "If simulations cannot be conscious, our consciousness rules out the pure simulation hypothesis from the start" (2022, p. 277). If consciousness cannot be or should not be realized *in a simulation substrate*, then conscious observers can conclude that they are observing the basement reality. The former case, that we "cannot be" simulated, may be true if consciousness cannot be simulated; the latter case, that we "should not be" simulated, may be true if simulating consciousness is possible but always intrinsically unethical.

Example

For an example of such a world, imagine a world in which:

1) silicon-based computers *cannot* be conscious, but
2) carbon-based brains *can* be conscious, because they have different substrates, however
3) simulations of human brains *cannot* be conscious, because they have a silicon substrate unlike their carbon counterparts.

Many of us entertain this worldview when we imagine that advanced computers and their simulants could be unconscious automatons.

b. Simulation-only Substrate-Dependence

Chalmers does not extensively consider the contrasting *simulation-only* substrate-dependent view that consciousness could be impossible in basement substrate. Consciousness would thus be (not a "nonsim sign" but) a "sim sign": evidence that we *are* in a simulation (2022, p. 91). If consciousness cannot be realized *except in a simulation substrate*, then conscious observers can conclude that they are observing a simulated reality of some kind by virtue of the fact that they are consciously observing reality at all. In other words, although we may not be phenomenal zombies ourselves, there may be only zombies in the basement.

Example

For an example of such a world, imagine a world in which:

1) silicon-based computers *can* be conscious, but
2) carbon-based brains *cannot* be conscious, because they have different substrates, however
3) simulations of human brains *can* be conscious because they have a silicon substrate unlike their carbon counterparts.

This worldview is more challenging to entertain because we seem to be conscious carbon-based brains ourselves, but it becomes more plausible when we consider that we could just be silicon-

based simulations of carbon-based brains who therefore think we are carbon-based human brains. On this view, there is nothing it is like to be a carbon-based human brain, though there is something it is like to be a silicon-based simulation of a human brain.

Argument

It is not obvious that Chalmers should ignore the *simulation-only* view, and there is at least one plausible argument that he should take this view seriously. The argument goes:

1. The basement-only substrate-dependent view of conscious supervenience is plausible (though weak).
2. We must be agnostic with regard to the supervenient metaphysical differences between substrates.
3. Therefore, the simulation-only substrate-dependent view of conscious supervenience is plausible (though weak).

Because of his comprehensiveness, Chalmers should certainly prima facie consider this view.

Objections and Responses

1. Rejecting Basement-Only Substrate Dependence?

We can reject Premise 1 if we believe that substrate-dependence generally (or specifically the basement-only substrate-dependent view) is implausible. Indeed, Chalmers himself prefers substrate-independence (Chalmers, 2022, p. 93).

However, given that the mechanism of consciousness is so mysterious, it seems hasty to prima facie rule out substrate-dependent views, and at least some thinkers take them seriously (Chalmers, 2022, p. 93). So, it is still reasonable to consider the view in a list of plausible views, as Chalmers does, albeit with weaker credence.

2. Rejecting Substrate-Supervenience Agnosticism?

We can reject Premise 2 if we have some reason to believe that some substrates have obvious supervenient metaphysical differences from other substrates. For example, we might hold a so-called "carbon chauvinist" view of consciousness that only carbon-based brains can have supervenient mental properties (Sagan, 1973, p. 47). Given that we appear to be carbon-based and given that imagining us to be silicon-based simulations requires an extra step beyond empiricism, there may be fair prima facie credence in carbon chauvinism.

However, given that entertaining these simulation arguments with Chalmers already requires stepping beyond mere empiricism, we are already committed to entertaining the possibility that we are mistaken about us being carbon-based lifeforms. Like Descartes, suspending initial judgement, the possibility that we are silicon-based consciousness is not prima facie ruled out (2008). Given this starting point, we have no obvious reason to believe in differences in superveniences upon substrates because we only have access to the phenomenal states of the substrate we *seem to be composed of*—not those of other substrates. Thus, it seems that the reasonable default view regarding substrate-supervenience would be some form of substrate-supervenience agnosticism—analogous to other forms of default agnosticism, not knowing enough to conclude one way or the other (Jonbäck, 2021; Le Poidevin, 2010, p. 76). Excluding

some substrates from our considerations of consciousness is premature, and we should treat them with comparable plausibility.

Notably, taking this kind of substrate agnosticism seriously also entails taking seriously a set of "substrate-independent" views, which we will consider in more detail next.

I. Two Substrate-Independent Views

Chalmers's preferred view is a structural "substrate-independence" view: consciousness is a supervenient property of structure, not of substrate (2022, p. 93).

c. Structural Substrate-Independence

According to Chalmers' version of substrate-independence, consciousness is possible both in basement realities and in simulated realities because the same structure can form in each and supervene upon phenomenal properties. On this view, consciousness would neither be a sim sign nor a nonsim sign.

Example

For an example of such a world, imagine a world in which:

1) carbon-based brains *can* be conscious, and
2) silicon-based computers *can* be conscious, because they both share the same cognitive structures, and
3) simulations of human brains also *can* be conscious, because they also share the same cognitive structures.

Many of us entertain this worldview when we imagine that advanced computers and their simulants could be conscious persons like ourselves.

d. Relation-only Substrate-Independence

Chalmers also does not seriously consider an alternative relational substrate-independent view: consciousness is a supervenient property of structure-relations. Under this view, consciousness is only realizable in the relationship between two different structures. If so, then, depending on the kind of relation onto which consciousness supervenes, conscious observers might be able conclude that they are observing an interface between simulated structure and its immediate basement structure. In this case, consciousness only arises after the basement structure generates at least one first-level simulated structure to bear relation with. On this view, consciousness would be possibly not a sim sign, possibly a first-level sim sign (an almost nonsim sign), and possibly a sim sign proper, because consciousness would only arise relationally, between a simulation and its basement—whether at all levels, the first-level, or higher levels. In other words, there would be no "ghost in the machine", only ghosts in the floorboards (Ryle, 1949)

Example

For an example of such a world, imagine a world in which:

1) silicon-based computers *cannot* be conscious, by themselves, and
2) carbon-based brains *cannot* be conscious, by themselves, however

3) simulations run in either structure *can* be conscious because of the relation of the structure of their simulation to the structure in their basement.

This worldview is more challenging to imagine due to its level of abstraction, but it is at least conceivable. If we imagine the simulation space as a polyhedron in its basement's space and consciousness transpiring (not on the volume of the polyhedron but) on the surface of the polyhedron, on the interactional interface between simulation and basement. Or, if we reflect upon what our own consciousness is like, it does not appear that we are conscious of the full volume of operations of our cognitive system; rather, it appears we are conscious not of a volume but of a surface, the arrayed termination points of nervous tissue upon which our sight, sound, and touch impressions impinge from the outside and upon which our thoughts, memories, dream impinge from the other.

On this view, if there is a brain in an empty void, it has no consciousness; and, if there is an object-rich world that is brainless, there is no consciousness; furthermore, if there is a dead brain in a full world but that brain is not running its simulations, there is no consciousness either; only if there is a simulating brain in an object-rich world is there the appropriate simulation/basement interface for consciousness supervenience. There is nothing it is like to be a basement/simulated structure, there is only something it is like to be an interface between such structures.

Argument

It is not obvious that Chalmers should ignore the *relation-only* view, and there is at least one plausible argument that he should take this view seriously. The argument goes:

1. Structural substrate-independent views of conscious supervenience are plausible.
2. The relation between structures is itself a structure.
3. Therefore, relational substrate-independent views of conscious supervenience are plausible.

Because of his comprehensiveness, Chalmers should also prima facie consider this view.

Objections and Responses

1. Rejecting Structural Substrate-Independence?

We can reject Premise 1 if we believe that structural substrate-independence is implausible. Chalmers himself points out that there are philosophers who prefer the substrate-dependent views (Chalmers, 2022, p. 93). Indeed, many options are available for (prima facie) explaining the mystery of consciousness (Van Gulick, 2021).

However, Chalmers himself prefers the structural substrate-independence view, and gives an argument against substrate-dependence (Chalmers, 2022, p. 177). Most explanations of consciousness are widely considered unsatisfactorily explanatory (Levine, 1983). So, it is still reasonable to think that some kind of supervenient structuralism (Chalmersian or other) is at least an explanation on par with other equally unsatisfactory explanations. So, suffice it to say that, at least following Chalmers' lead, we should consider the view at least as plausible as other views.

2. Rejecting Relations between Structures as Structure?

We can reject Premise 2 if we believe that the relation between a basement structure and a simulation structure is itself not a structure. Perhaps the relation does not count because of some stipulated metaphysical principle about structures.

However, thinking that the relations between structures are not structures seems fairly implausible. We can approach this with the following reasoning: two micro-structures joined by an intermediating structure can be made to form a macro-structure, and then breaking the intermediating structure within the macro-structure can reform the micro-structures, all else equal. So, it is exceedingly reasonable to suppose that relations between structures can themselves count as structures in their own right. Chalmers himself seems inclined towards a fully structuralist definition of reality, such that even physical substrate is merely a type of structure—structures all the way down!—and he would therefore endorse this reasoning (Chalmers, 2022, p. 175). So, structures that are relations between other structures seem just as fair candidates for sites of conscious supervenience as do any other structures.

3. Consequences and Comparisons

If either the *simulation-only* or *relation-only* views are true, they entail several strange consequences.

a. Psychological Consequences

Believing either view changes how we should believe our minds operate. Namely, our minds, by virtue of being conscious, must be either be supervening on simulation substrate or simulation interface. To the extent that the views both accept Chalmersian supervenience approaches to the mind/body problem, the views share certain features with the tradition of dualistic theories of mind (Princess Elisabeth & Descartes, 2007). To the extent that the views take seriously the simulation hypothesis, the views share certain features with "representational theories" of mind, to the extent that a simulation can be conceived of as a type of representation of one substrate in another substrate (Lycan, 2023).

b. Ontological Consequences

Believing either view changes who we should believe we are as beings and observers in two ways.

If the simulation-only view is true, then we conscious observers must be experiencing a simulation; we are conscious because we are part of one by substrate. We can confirm that we are part of a simulation merely by virtue of the sim sign of our own consciousness. And, the basement reality must be empty of conscious creatures like ourselves, containing only phenomenally void ones; it is a "zombie world" and nobody like ourselves is conscious there, except perhaps the simulation we are part of (Chalmers, 1996, p. 94). There are zombies in the basement, and we are not them.

If the relation-only view is true, then we conscious observers are interfacing with a simulation; we are conscious because we are between the simulation and its basement. This also implies that the basement is dark, but in a slightly different way, because the basement is only dark until it

has a simulation to interface with, at which point it realizes consciousness, like flint and steel sparking light. There are ghosts in the floorboards and perhaps we are them.

c. Theological Consequences

Several further consequences that are theological (in the broadest sense) are worth bearing brief mention as well (Steinhart, 2010).

The simulation-only view is weakly theistic in that it implies that every reality with conscious observers must at least have a simulator-creator in its basement one reality below that is effectively omnipotent with respect to its simulation. Second, the view is weakly monotheistic in that it implies a single basement reality to which simulations converge that is itself phenomenally void aside from the simulator-creator that manifests consciousness up through chaining simulations.

Certain versions of the relation-only view (if we are in the higher levels of simulation) can be weakly theistic and weakly monotheistic in the same manner, but at least one version (if we are in the first level of simulation) implies no creator-simulator besides beneath our interface, just a dark basement.

Though admittedly controversial, these stances are not as theologically exotic as they may sound at first glance and have some passing resemblance to other views.

The simulation-only view bears some resemblance to Berkeley's idealism and/or Hegel's historicism: on the one hand, the view implies that minds only take place in the substrate (simulation) of another mind one level below (Berkeley, 1710); on the other hand, it implies that the beginning and end of any history of conscious beings is realized in a spiritual process (simulator and simulation), from which consciousness emerges and to which it returns fully realized (as new simulation) (Hegel, 1975).

The relation-only view bears some family resemblance to Kantian epistemic idealism and/or Baudrillardian nihilism: on the one hand, the view implies that consciousness only arises as immediately experienced phenomena (the simulant) on top of and in relation to an underlying (unobservable and only inferable) transcendental noumena (the simulator) (Kant, 1781, A249); on the other hand, were we as simulants to see the raw "real" it would be a phenomenal desert, and only the superimposition of simulated by simulator is available to be experienced by us as such, without supernatural (simulator-creator) intervention (Baudrillard, 1994).

Of course, none of these comparisons imply anything supernatural, which is to Chalmers' own preference; they merely imply a basement/simulation metaphysics of an ambiguously naturalistic flavor (Chalmers, 2003). This actually permits for a purely naturalistic, parsimonious worldview with a casually closed materialistic universe (Oppenheim & Putnam, 1958) to maintain a layered metaphysics that is plausibly theistic (in a weak sense). But these views are also consistent with many supernatural worldviews because they are open-ended with regard to the nature (or supernature) of basement realities and the divinity of their inhabitants. There is reason to think that some of the most famous scientists might have had sympathy for this very combination of views, parsimony and theogony (Newton, 1687, p. 398; Galileo, 1632, p. 397).

4. Discussion and Conclusion

So, after this, do we believe that we are sims and that there are zombies in the basement? Are there ghosts in the floorboards? Plausibly, but plausibly not.

The simulation-only or relation-only views are possibilities that Chalmers on his own terms should be committed to considering, and the two views are notably underdeveloped in Chalmers' considerations, so perhaps Chalmers does not think them worth considering (or perhaps he just did not think about them). Hence, the primary motivation for the considerations here is not to take a hard stand but to fill a lacuna in the mostly comprehensive considerations supplied by Chalmers. That being said, from what we have argued here, neither view needs to be given high credence.

However, even if we do not give high credence to either the simulation-only view or relation-only view, the arguments for them should still update our general credences regarding consciousness as a sim sign (summarized in Table 2).

Table 2: Views of Consciousness/Simulation Relations and their Corresponding Sim Signs

Supertype	***Substrate-Dependent***		***Substrate-Independent***			
Type	**Basement-only Substrate-Dependence**	**Simulation-only Substrate-Dependence**	**Structural Substrate-Independence**	**Relation-only Substrate-Independence**		
Subtype				**Any-Level**	**First-Level**	**Higher-Levels**
Subtype Sim Sign?	Nonsim Sign	Sim Sign	Neutral	Neutral	First-Level Sign	Higher-Level Sign
Type Sim Sign?				Neutral		
Supertype Sim Sign?	Neutral		Neutral			

If we accept the Simulation-Only Substate-Dependent view as equally plausible as the Basement-Only Substate-Dependent view, then we should believe that consciousness may equally be a sim sign or a nonsim sign. This is because on the former view consciousness is a sim sign and on the latter view it is a nonsim sign, balancing out. Even so though, the Substrate-Independent views might still be preferrable.

If we accept the Structural Substrate-Independent view as plausible, then we should believe that consciousness is not a sign of anything. This is because on the structural view consciousness is not a sign one way or the other.

If we accept the Relation-Only Substrate-Independent view as plausible, there are three ways to interpret consciousness as a sim sign:

1) If the relation-only view permits of consciousness between all levels of simulation and its basement, then consciousness can exist up and down the simulation chain, so consciousness is a neutral sign with respect to its levels.

2) If the relation-only view permits of consciousness between only higher levels of simulation and simulated basements, then consciousness can exist up and down the simulation chain but not on the first-level, so consciousness is a higher level sign.
3) If the relation-only view permits of consciousness only between the true basement and its first simulation, then consciousness only exists at the interface of the first level interface, so consciousness is a first-level sim sign.

If all three versions of the relation-only view are considered on par, then consciousness on this view is a completely ambiguous sim sign—signifying everything at once.

Furthermore, given any of these sets of views, the status of simulated consciousness is doubly dubious, and thus any ethical claims that the basement would ethically incline to or decline to run simulations seems moot, torn on several axes of uncertainty.

In summary, the simulation-only view at least reduces credence in the conjecture that consciousness is a potential nonsim sign, and at most neutralizes it; the relation-only view offers three conjectures: that consciousness is either an any-level sign, a first-level sign, or a higher-level sign, but these signs all neutralize each other. In other words, ceteris paribus, for all views all sim signs cancel out. Because of this we can make the following more generalizable claim:

> **The Sim Sign Neutral Consciousness Conjecture**: no matter one's view on the relationship between consciousness and substrate—dependent or independent, structural or relational—consciousness cannot ceteris paribus constitute a sim sign or nonsim sign.

We have shown that this conjecture holds for the views we have explored, which is perhaps exhaustive of possible views; but, even if there are more possible views, we suspect that the conjecture would hold up for those as well, because we suspect such views would arise in simulation/basement pairings with sim/nonsim signs cancelling out (as these other views have). So, although Chalmers might have left underexplored some considerations in his contemplation of simulated consciousness, and although he assumes that consciousness is substrate-independent and we make no such assumption, we end up concurring with him that consciousness is probably not a sim sign one way or the other. Yes, you are conscious. No, this is not a sim sign.

So, we have not concluded that we are living in a simulated reality, nor have we explained why the qualia of consciousness are the way they are (nor have we attempted to); however, we have concluded that, without additional evidence one way or the other, consciousness is neither a sim sign nor a nonsim sign. Are we in a simulation? Not that we can be conscious of.

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