

## Is There an Upper Limit on Consciousness?

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### 1. Introduction

Philosophers of consciousness have devoted considerable time and energy to thinking about *zombies* and *color spectrum inverts*. In the first case, we are asked to imagine perfect physical/functional duplicates of us who lack conscious experience altogether—there is never anything that it's like to be them. In the second case, we are asked to imagine perfect physical/functional duplicates of us where what it's like for them to see red things is what it's like for us to see green things, and vice versa, and so on for other colors. If we think of these cases in terms of *subtracting away* conscious experience or systematically *substituting* different types of experiences for one another, then it becomes clear that there is a third possibility that philosophers of consciousness have not discussed, namely, *adding on* conscious experiences to creatures who are built just like us. Call them *Gnostics*.

Gnostics raise a new question that *zombies* and *inverts* do not, *the conceivable limit question*. Is there an upper limit to how many distinct types of conscious experiences creatures who are built like us can conceivably have? In other words, is there a maximally conscious state (or set of maximally conscious states) that creatures who are built like us could conceivably have? Or can we conceive of extra types of experiences being added on to creatures who are built like us *ad infinitum*?

Gnostics are also relevant to two pre-existing questions. First, is *the rules question*: are there rules that govern how different types of conscious experiences can conceivably combine with one another to build out a subject's total experience at a time (Lande, 2020; Ashby, 2020)? If there

are, then those rules may (or may not) dictate that maximally conscious states are conceivable. The second is *the unity question*: In what sense, if any, is consciousness unified (Bayne & Chalmers, What is the unity of consciousness?, 2003)? Can we simply add on experiences in the Gnostic case while respecting the unity of consciousness?

I shall argue that philosophers who claim that consciousness can conceivably vary independently of our physical/functional properties face a challenge in answering the conceivable limit question. While it remains unclear if they can meet the challenge, discussion of the rules and unity questions may suggest a way forward.

## 2. Gnostics

We can construct different Gnostics by considering different physical/functional states that, so far as we can tell, are not phenomenally conscious for us. For instance, within a fairly broad range, there doesn't seem to be anything that it's like for us to have any particular blood pressure. For the *blood pressure Gnostic*, however, what it's like to have a blood pressure of, say, 110/60 is as different from what it's like to have a blood pressure of 140/100 as an experience of red is from an experience of purple. We could also consider Gnostics who have different experiences associated with the operations of their kidneys or livers.

Gnostics are not like genetically or cybernetically enhanced humans who have extra experiences but, in virtue of their augmentations, are not physical/functional duplicates of us. Gnostics speak like we do, act like we do, and think like we do under every possible circumstance. For Gnostics to be conceivable, it will also need to be conceivable that our conscious experiences could be *epiphenomenal* and so have no causal impact on physical processes.<sup>1</sup> Gnostics are not unique in this respect, however; at least when framed in terms of physical duplication, the

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<sup>1</sup> The requirement is that our conception of consciousness leaves it an open question whether consciousness is epiphenomenal.

conceivability of zombies and inverts also requires that consciousness could conceivably be epiphenomenal (Perry, 2001).<sup>2</sup>

Not everyone will grant that Gnostics, zombies, or inverts are conceivable (see §4). And Gnostics are a strange case to consider. If we wonder what it's like to have rich and vivid experiences of different blood pressures, then so do our Gnostic counterparts *even as they have exactly those experiences*. But there are ways of making the case seem less strange. For instance, one might wonder what it would be like to echolocate. But Eric Schwitzgebel and Michael Gordon (2000) cite empirical work showing that humans have a crude sense of echolocation. And they argue that we routinely have echolocation experiences; we just don't notice them. Going somewhat further, we might consider hypothetical experiences that I'll call *zapper experiences*: experiences so inherently jarring that they disrupt our train of thought and memory formation processes whenever we try to pay attention to them. So, if we do try to pay attention to them, we just end up wondering what we were trying to do a moment ago.

Echolocation and zapper experiences correspond to real or hypothetical functional capacities, unlike the Gnostic's extra experiences. Nevertheless, they make the idea of experiences that we cannot pay attention to seem a little less strange.

### 3. The Scale of Consciousness

As a tool for thinking about the conceivable limit question, I want to introduce *the scale of consciousness*, an array of creatures who are built like us but who conceivably may differ from us experientially.

Zombies show us that there is a *lower limit* on how little consciousness creatures built like us could conceivably have: none at all. There are also *partial zombies*. Here we are asked to

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<sup>2</sup> Functional duplication is more complicated. One might claim that the realizer of the role and not the role itself is what matters for consciousness (see Chalmers, 1996: 266-273 for discussion).

imagine physical/functional duplicates of us who lack some but not all of our experiences. For instance, *visual zombies* have no visual experiences, *auditory zombies* have no auditory experiences, and *audiovisual zombies* have no auditory or visual experiences, but all three of these partial zombies have, for instance, somatic and emotional experiences. Partial zombies suggest that there are intermediate degrees of consciousness between us and the full-blown zombie.

Gnostics suggest that we do not mark the upper limit on the scale of consciousness. The blood pressure Gnostic has more kinds of experiences than we do, and a blood pressure + liver Gnostic has even more kinds of experience still. The conceivable limit question concerns just how far we can extend this chain of increasingly conscious Gnostics.<sup>3</sup>

## 4. Metaphysics and the Limits of Consciousness

### 4.1 Physicalism

One's metaphysics of consciousness affects how one can answer the conceivable limit question. *Physicalists* claim that our conscious experiences are grounded in our physical/functional states (and perhaps our environment). So, if it is metaphysically possible for consciousness to vary independently of our physical/functional states, then physicalism is false. Zombies, inverts, and Gnostics are all cases in which it seems as if we can conceive of consciousness varying independently of our physical/functional states. So, physicalists have two ways of responding to these *variation cases*.

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<sup>3</sup> Ties are possible on the scale of consciousness. Color inverts have exactly as many kinds of experiences as we do. And there may be indeterminacy when neither of two creatures' experiences form a proper subset of the other's experiences. For instance, it is not immediately clear whether an auditory zombie has more, fewer, or the same number of types of experiences as a visual zombie. This will not affect the present discussion. The conceivable limit question amounts to the question of whether, for any given Gnostic, we can conceivably find another Gnostic who has all of the first Gnostic's experiences and then some.

First, physicalists can argue that variation cases are not conceivable, they only seem that way because we fail to notice some sort of subtle contradiction, confusion, or equivocation (e.g., Dennett, 1991). Call this view *conceptual physicalism*.

For conceptual physicalists, determining the limits of consciousness is straightforward. Variation cases are inconceivable, so we are the only creatures on the scale of consciousness; we mark both the upper and the lower limit of consciousness.

Second, physicalists can argue that conceivability does not entail possibility. They can grant that variation cases are genuinely conceivable while arguing that these thought experiments do not describe genuine metaphysical possibilities. This view is adopted by *non-reductive physicalists* (such as Block, 2006 among many others).

Non-reductive physicalism claims that our intuitive understanding of consciousness is partially mistaken. Consciousness intuitively seems like it can vary independently of our physical/functional states, but it can't. Importantly, the mistaken component of our intuitive understanding of consciousness may be *incomplete*. It may turn out that the psychological processes involved in our intuitive understanding of consciousness aren't sufficiently determinate to yield clear rulings on whether there are maximally conscious states or not even if those processes are sufficiently determinate to yield clear rulings on the conceivability of zombies, inverts, and less extreme examples of Gnostics. Because conceivability is no guide to possibility in the case of consciousness, there are no further facts that could settle what is and is not conceivable beyond what our intuitions entail, and what our intuitions entail may be incomplete. So, whether or not non-reductive physicalists can answer the conceivable limit question remains to be seen.

## 4.2 Anti-physicalism

Anti-physicalists about consciousness claim that it's both conceivable and metaphysically possible for consciousness to vary independently of physical/functional processes. So, I take it that

anti-physicalists will maintain that at least some Gnostics are conceivable and metaphysically possible. Anti-physicalists already claim as much for zombies and inverts, and it's not immediately clear what grounds they could offer for thinking that Gnostics alone are inconceivable/impossible. Moreover, Gnostics are yet another variation case that anti-physicalists can martial against physicalists. So Gnostics would seem to be that much more grist for the anti-physicalist's mill.

If Gnostics are conceivable and metaphysically possible, then there should be a fact of the matter about whether or not there is a maximally conscious state that creatures who are built like us can possibly have. And that fact of the matter is not determined solely by the psychological processes that guide our intuitive reactions to variation cases. So, for the anti-physicalist, the conceivable limit question goes hand in hand with a parallel question about what is and is not metaphysically possible. So, anti-physicalists are plausibly committed to the claim that there is an answer to the conceivable limit question and its metaphysical counterpart even if it turns out that we aren't smart enough to figure out their answers. So, it remains to be seen if anti-physicalists can answer the conceivable limit question.

## 5. Reasons in Favor of Infinitely Many Kinds of Experiences

I now want to briefly survey some of the more promising routes for answering the conceivable limit question. The aim is not to offer an exhaustive list of options, but to provide a flavor of the sorts of challenges involved in answering the question.

### 5.1 Arguments that There is no Upper Limit

Here are two arguments for the claim that consciousness has no upper limit. First, it is not clear that there are any conceptual limits on the number of different types of sensory modalities that there could be. So, imagine that there are sensory experiences associated with all of those

modalities and then add them on to the Gnostics' experiences. Call this the *sensory systems strategy*.<sup>4</sup>

Second, many philosophers maintain (1) that we can entertain an unbounded number of thoughts (regardless of whether our conceptual repertoire is finite) and (2) that we could possess an infinite number of different concepts (Fodor, 1994). Consequently, one could argue that we can conceive of different experiences corresponding to each of these infinitely many thoughts or concepts. I'll call these the *thought-based* and the *concept-based strategies* respectively.

Cognitive phenomenology is a controversial topic. One controversy concerns the coherence of the idea of cognitive phenomenology itself (see Bayne & Montague, 2011 for an overview). Setting that controversy aside, however, there are reasons to be skeptical of at least the thought-based strategy.

If thought-based phenomenology is compositional and recursive—that is, if the phenomenal character of a thought is determined by the phenomenology of its constituent concepts and the operations relating those concepts, and some operations can be iteratively applied—then the thought-based strategy can produce infinitely many experiences, but it's not clear that these will qualify as different kinds of experiences in any interesting sense. Consider a comparison with perception. We can experience different colors and different shapes, and we can experience conjunctions of color and shape. But it's not clear that there's very much that's new to having an experience of seeing a red cube over and above our experiences of seeing red in general and our experiences of seeing cubes in general. So, unless there are infinitely many concepts out of which our thoughts can be composed, then the thought-based strategy may not yield an infinite number of

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<sup>4</sup> One could explore a similar strategy for emotional experiences or by introducing the possibility of psychological faculties besides perception, emotion, and cognition that human beings do not have.

different kinds of experiences in a very interesting sense. The viability of the thought-based strategy likely reduces to the viability of the concept-based strategy.

While I think the sensory systems strategy and the concept-based strategy have some prima facie plausibility, consideration of the rules and unity questions in the next section will show that it's not clear whether these strategies will ultimately succeed.

## 5.2 Possible Limits on Consciousness

While discussion of the rules and unity questions does not, I think, definitively show that consciousness has an upper limit, it will highlight the reasons why we cannot simply take it for granted that consciousness has no upper limit.

Kevin Lande (2020) and Brandon Ashby (2020) argue that perceptual consciousness has a compositional structure. The core claim is that what it is like for us to see a square, for instance, is a function of what it is like us to see the different parts of the square (it's edges and vertices) and their arrangement. So, there are rules that govern how different kinds of experience can be combined with one another to build out what it's like to be us. These rules are akin to the grammar of a language or the rules of composition for different systems of mapping and diagramming. Consequently, we can identify certain kinds of experiences that would be ill-formed. For instance, Ashby argues that we cannot coherently imagine substituting experiences of itchiness and experiences of green for one another. Itchy experiences, he argues, have the wrong kind of syntactic structure to participate in the visual field, and likewise for green experiences and our experiences of our 'bodily field'.

What Lande's and Ashby's work shows is that there are limits on how experiences of different kinds can be combined with one another. And Ashby, at least, explicitly argues that the syntactic properties of experiences are intrinsic to them. If that is correct, then for us to be able to coherently imagine adding on a type of novel experience (such as blood pressure experiences) to

our own, there will need to be rules for how to compose the novel experiences with the experiences that we already have. But such rules may not always exist, in which case the novel sort of experience in question won't be composable with our experiences. To see the point, consider some work on maps and diagrams. Elizabeth Camp (2007) has famously argued that there are limits on just how much cartographic systems of representation can be extended. For instance, she argues that maps likely cannot be supplemented in a way that would allow them to represent counterfactuals. In this case, the kinds of compositional rules we would need to incorporate novel elements that could represent counterfactuals don't seem to exist. In the case of diagrams, Sun-Joo Shin (1994) was able to supplement Venn diagrams in a way that makes them expressively equivalent to first-order predicate logic. In this case, Shin found compositional rules that incorporated novel representational elements into Venn diagrams that would increase their expressive power in the right kind of way. The contrast between Shin's and Camp's results show that it is an open question whether or not any given representational system can be extended in any particular way. While this does not show that consciousness does, in fact, have a limit, it does show that the experiences we take a subject to already have may limit what sorts of additional experiences we can coherently imagine being added on to that subject. If those limits are pervasive, then it may not be possible to add on novel kinds of experiences to creatures built like us *ad infinitum*.

Now let us turn to the unity of consciousness. As noted in §2, if we wonder what it's like to have blood pressure experiences, then so do our Gnostic counterparts *even as they have those very experiences*. No matter how hard they try, they cannot attend to or remember any of the extra experiences that they actually have. So, the Gnostic's extra experiences are, let us say, *phenomenological danglers*: mere appendages to their overall mental state that nominally belong to the Gnostic at best but ultimately have no effect on and are not integrated into the Gnostic's psychology in any way. In any important respect, the unity of consciousness has broken down for

the Gnostic. So, the extra experiences that we try to imagine the Gnostic as having don't really seem to belong to the Gnostic after all, and so one could argue that the unity of consciousness itself puts an upper limit on consciousness. Even if we can conceive of there being experiences that correspond to physical/functional processes that are phenomenally unconscious in us, perhaps we cannot actually conceive of us (or counterparts of us) as having those experiences unless those experiences can be remembered, attended to, or reported on in at least some minimal fashion. After all, if someone here in the actual world claimed to have experiences of their own blood pressure, whether or not we think that she is correct would likely depend on whether or not she was above chance at reporting on what her blood pressure was (within some reasonable margin of error). In any event, while there are different notions of the unity of consciousness (see Bayne & Chalmers, 2003 for discussion), Gnostics plausibly violate at least one important understanding of the unity of consciousness. And some philosophers could appeal to that violation to argue that Gnostics do not in fact show us that we do not mark the upper limit on consciousness.

## 6.0 Conclusion

I have introduced a new thought experiment, Gnostics, in order to raise the question of whether there is a limit on the number of kinds of experience creatures who are built like us can conceivably have. I have argued that many philosophers of consciousness will face a challenge in answering this question. And I have sketched some possible routes by which one may be able to argue that consciousness does and does not have an upper limit. However, it remains unclear that we currently have the resources needed to offer a definitive answer to the conceivable limit question at this time. The sensory systems strategy and concept-based strategy seem plausible on their face, but additional work on compositional approaches to consciousness and considerations stemming from the unity of consciousness may ultimately show otherwise.

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