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## Non-Human Moral Status: Problems with Phenomenal Consciousness

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### ABSTRACT

Consciousness-based approaches to non-human moral status maintain that consciousness is necessary for (some degree or level of) moral status. While these approaches are intuitive to many, in this paper I argue that the judgment that consciousness is necessary for moral status is not secure enough to guide policy regarding non-humans, that policies responsive to the moral status of non-humans should take seriously the possibility that psychological features independent of consciousness are sufficient for moral status. Further, I illustrate some practical consequences of calling consciousness-based views into question.

### KEYWORDS

Consciousness; moral status;  
artificial intelligence;  
animals

### INTRODUCTION

An attribution of moral status to some entity signifies that the entity has non-derivative moral significance, in the sense that the entity's interests matter morally, for the entity's own sake. That human beings have a high level of moral status (sometimes called full moral status) is not in dispute, although there is much disagreement about why this is so. But here I focus on non-human moral status.

There is evidence in many societies of a growing willingness to reconsider the moral status of non-humans.<sup>1</sup> This is salutary, though in recent academic literature there has been, in my view, too much focus on consciousness as the foundation of non-human moral status. In section two I canvass the options, and identify the range of views that qualify as consciousness-based—these are views that regard phenomenal consciousness as necessary for moral status. In section three I argue via several routes that the judgment that consciousness is necessary for moral status may not be robust enough to guide policy regarding non-humans, and I illustrate some practical consequences of calling consciousness-based views into question.

### PHENOMENAL CONSCIOUSNESS AND MORAL STATUS



Phenomenal consciousness is a property of a subject's psychological states (e.g., seeing red, feeling dizzy) in

virtue of which there is “something it is like” for the subject to token the state. The thought that the possession of phenomenal consciousness by an entity supports the attribution of (some level of) moral status to an entity is intuitively plausible, widespread, and underlies a wide range of recent work on moral status (Kahane and Savulescu 2009; Shepherd 2018a; Lavazza and Massimini 2018; Sawai et al. 2019; DeGrazia 2020; Lee 2022). Many endorse a *consciousness-based* approach to understanding moral status. As Shevlin (2020) has it, a consciousness-based approach maintains that phenomenal consciousness is a necessary condition on *psychological* moral patiency. (This leaves open the possibility that an entity could matter morally for non-psychological (e.g., ecological) reasons.)

There are many different ways to fill out a consciousness-based approach to moral status. And there are different ways to resist such an approach. It may be useful to have a map of our options which, as I see it, fall roughly into six families.

#### ***First, While Consciousness Is Necessary for Moral Status, It Is Not Sufficient***

There are many ways to flesh out this view. One might maintain, for example, that in addition to consciousness, significant cognitive sophistication must be in place for an entity to possess some level of moral

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<sup>1</sup>The evidence includes changes in regulatory frameworks (e.g., the Animal Welfare (Sentience) Bill in the UK, a similar bill in Spain (Ley 17/2021, de 15 de Diciembre), and bans regarding boiling Lobsters alive in Switzerland, Norway, and New Zealand), and in socio-cultural practices regarding meat eating—for example, the rise in veganism (see <https://sentientmedia.org/increase-in-veganism/>).

status. While a simplistic conscious being possesses no moral status, on this option, the addition of different forms of attention, or memory, or abstract planning, or language—pick your favorite capacities—makes a moral difference. Those who maintain that “sentience,” understood as the capability for pleasant or unpleasant experiences, is necessary and sufficient for moral status, may also take this option (DeGrazia 2021). For sentientists, consciousness on its own may be necessary, but insufficient, simply because some forms of consciousness could be present in an entity without sentience being co-present (see Shepherd 2018a).

***Second, Consciousness Is Necessary and Sufficient for Possession of (Some Level of) Moral Status—but It Is Not the Only Contributor to an Entity’s Level or Amount of Moral Status***

To see how this view might work, compare a simplistic conscious entity (a snail, perhaps) and a sophisticated conscious entity (a bonobo, perhaps). One might hold that while both entities have some level of moral status, the bonobo has higher moral status, and not (only) in virtue of having a richer stream of consciousness. Rather, the bonobo has higher status because it is a more sophisticated system overall, and as such, it is able to participate in forms of life that have moral value—the acquisition of knowledge, the development of social relationships, or relationships of care, or what have you.

Faden et al. (2021) come close to this view regarding animals. They distinguish sentience from cognition and hold that, for animals, sentience is necessary and sufficient for some level of moral status. In addition, they claim that “cognition, too, is a source of welfare interests” (163). So cognition can contribute to an animal’s level of moral status: “the threshold that must be crossed to move to higher levels of moral status is most likely the capacity for modestly sophisticated forms of cognition at some level of reason, including the capacity for autonomous choice and self-awareness” (163).

***Third, Consciousness Is Necessary and Sufficient for the Possession of Some Level of Moral Status, and It Is the Only Contributor to One’s Level of Moral Status***

Experientialist theories of well-being maintain some version of the following claim: “only what affects our experience can alter someone’s wellbeing” (van der

Deijl 2019, 1769, see also Bramble 2016). This is often connected to a claim about intrinsic value, namely, that the only things that are intrinsically good or bad for someone are their conscious experiences. On views like these, one might hold that it is only the potential richness—or some related property—of some entity’s conscious experiences that determines their level of moral status. Cognition may thus make an indirect contribution to moral status, if cognition alters the richness of conscious experience. But there may be other routes to richness—cognition, or any other non-conscious feature of mentality, is on this view inessential.

On all of the above options, there is no moral status without consciousness. So these three options are varieties of a consciousness-based approach to moral status. As already noted, at least amongst philosophers and bioethicists, this approach seems to enjoy a significant majority. And in spite of ample room for disagreement underneath the banner of a consciousness-based approach, this approach is unified by what we might call an *judgment of necessity*.<sup>2</sup> Some aspect of consciousness is, at minimum, necessary for the possession of moral status.

Intuitions in support of this judgment can be elicited by a range of cases. Perhaps the most common kind of case involves zombies (Chalmers 1996) or partially zombified people (Siewert 1998). This kind of case asks us to begin with the mental life of something familiar, like an adult human. In a case of partial zombification (or what Siewert called “phenol-ectomy”), we imagine aspects of consciousness stripped away. We can imagine a mental life that is functionally identical to our own, but with no phenomenology of smell, or no conscious experience of pleasure or pain, for example. In a case of total zombification, we imagine all the same psychological functionality in the absence of any consciousness. For such a zombie, it is said, “there is nothing that it is like.” The intuition that many have is that without consciousness, the interests of the entity in question are no longer morally significant.

Of course, zombies do not present policy problems in our world. But a wide range of non-humans do, and if one adopts a consciousness-based approach, then a central question will be whether the non-human in question is conscious. If not, moral consideration need not go any further. If yes, there may be massive practical implications. Here, for example, is

<sup>2</sup>For some, this judgment seems to be underwritten by a strong intuition. Others find their way to this judgment via argumentation, or via considerations of theoretical parsimony.

DeGrazia applying his moral status framework to future artificial intelligence technology.

[I]f we reasonably believe a robot is sentient, we should give its apparent interests equal moral weight to our comparable interests – an immediate application of which is that we may not use them as slaves or uncompensated servants. (DeGrazia 2021, 52)

Not everyone takes a consciousness-based approach to moral status, however. Here are three types of view that do not.

#### ***Fourth, Consciousness Is Irrelevant for the Possession of Moral Status***

One might have this view if one were a kind of illusionist about consciousness. According to illusionism, phenomenal consciousness does not exist, and our belief that it does is due to an illusion our minds create and sustain. As Frankish has it, “our sense that there is something it is like to undergo conscious experiences is due to the fact that we systematically misrepresent them as having phenomenal properties” (2016, 11). Now, the illusionist is not forced to take this option—they might hold that in worlds where consciousness exists, it does ground moral status (see Kammerer 2019). But it is coherent to maintain both illusionism about consciousness and the view that consciousness is irrelevant to moral status. And one can see that illusionism might create some motivation to accept this view.

#### ***Fifth, Consciousness Is Neither Necessary nor Sufficient for Possession of Moral Status, but It May Be a Contributor to an Entity's Level of Moral Status***

I know of no one who argues for this view in print, but one might get to such a view by taking a kind of objective list approach to the value of an entity, where consciousness is only one item on the list (and where multiple features need to be co-present for moral status), or where consciousness is able to instrumentally contribute to the realization of other items on the list.

#### ***Sixth, While Consciousness Is Not Necessary for Possession of Moral Status, It May Be Sufficient***

Amongst those who do not endorse a consciousness-based approach, this is the most popular option. One might get to it in any of several ways.

Peter Carruthers (1999), for example, has argued that though consciousness can be morally relevant, “the psychological harmfulness of desire-frustration has nothing (or not much ...) to do with phenomenology, and everything (or almost everything) to do with thwarted agency” (479). Carruthers is suggesting, in effect, that capacities for desire-satisfaction might be sufficient for some moral status, even if other aspects of consciousness are likewise sufficient. Similarly, Neil Levy has argued that “A great deal of what matters to us and about us can be explained by functional and representational properties that may not be sufficient for phenomenal consciousness” (2014, 127). Their arguments are at least consistent with a family of approaches that enjoy some popularity in veterinary medicine and animal science—what Shevlin (2020) calls affective-state approaches. Shevlin outlines this as a family of “views that (i) identify [psychological moral patiency] with a capacity for undergoing canonically unpleasant states such as pain, nausea, and fear, and (ii) either reject or seek to sidestep the relevance of consciousness to [psychological moral patiency]” (187).

Some theorists have articulated versions of this option not with animals, but with future artificial intelligence (AI) in view. We have already noted that while Faden et al. (2021) seem to consider consciousness necessary for animal moral status, they withhold judgment regarding the moral status of AI. Sinnott-Armstrong and Conitzer (2021) go further.

If an AI cannot feel pain, it will have no right not to be caused pain. But even if an AI does not feel pain or experience any phenomenal consciousness, that is not enough to show that it does not have any moral rights, because it still might have moral rights that are unconnected to phenomenal consciousness, including, possibly, the right to freedom. An AI that does not feel pain could still access information and use it in making choices, seeking goals, and performing tasks ... That would be a basis for its moral right to freedom. (2021, 281)

While the claim here is put in terms of AI, in my view, if we are to take this option regarding the moral status of AI, I see little reason to withhold it from animals.

In sum, then, we confront a range of options regarding the relevance of consciousness to moral status. Although there is much disagreement on details, the leading coalition is the consciousness-based approach. This coalition is bolstered by what I have called the judgment of necessity. Some reject this judgment, and argue that aspects of non-conscious mentality generate moral significance in their own

right. It is my aim here to offer support to the minority who reject this judgment.

## REVISITING WHETHER CONSCIOUSNESS IS NECESSARY FOR MORAL STATUS

As we have seen, the consciousness-based approach depends upon the judgment of necessity. I claim that the grounds for this judgment are not robust enough to serve as a foundation for policy that aims to be sensitive to the moral status of non-humans. To support this claim, I offer three arguments.

### *Argument from Illusionism*

The first argument depends upon illusionism about consciousness (for recent discussions, see Dennett 2016, 2019; Frankish 2016; Kammerer 2021). As noted above, illusionism is the view that phenomenal consciousness does not exist (at least in our world), and our belief that it does is due to an illusion our minds create and sustain.

If illusionism is true, what can be said regarding the judgment that consciousness is necessary for moral status?<sup>3</sup> One could hold that consciousness is necessary for moral status, and thus that no one in our world has moral status. Let us set that option aside<sup>4</sup>, and consider the view that, while consciousness would be sufficient for moral status (if anyone were conscious), in our world moral status has different grounds.

If one takes this view, one is faced with a long line of philosophers and bioethicists who are seemingly mistaken about moral status. How to explain the fact that many philosophers endorse a consciousness-based approach to moral status? The illusionist might postulate that while we are able to introspectively locate features of psychological life that are morally significant (the presence of pains, the recognition of having achieved a goal, the self-aware pursuit of personal projects and values), we are not able to clearly distinguish these features from the illusory phenomenal properties that seem attached to them. So the judgment of necessity is based upon a cognitive mistake that is systematic, even if not quite as systematic as the mistake that generates the illusion of consciousness.

<sup>3</sup>For a nice discussion of the moral implications of illusionism, see Kammerer (2019).

<sup>4</sup>Consideration of this option would take us in a very different direction, and practical issues about what we owe to others independently of their moral status would arise.

Is this what is really going on in our case? If I were to accept illusionism, I would think so. Introspection is not always reliable. And although philosophers debate introspection's reliability regarding aspects of phenomenal consciousness (Schwitzgebel 2008; Kriegel 2013; Peels 2016), if I were convinced on independent grounds that illusionism is true, I would lose confidence that introspection can accurately pinpoint the features of my own mental life that support a claim to moral status.

### *Argument from Human Ignorance*

The second argument targets a broader patch of theorists. It involves the claim that the judgment of necessity is based in human ignorance.

Consider what happens when we are asked whether there is any value in the mental life of a non-conscious being. There are many ways to arrive at a judgment in response, but a common method is to think about what is valuable in our own mental lives, and to think about whether that kind of thing would be present in the mental life of a non-conscious entity.

The problem here is that access to any value in our own mental case is very strongly correlated with consciousness. We lack much access, outside of interpretive work, to the aspects of our mentality that are non-conscious. Many of us will try to picture a stream of consciousness with the lights turned out—a stream of information-processing for which “all is dark inside.” But, as we are not beings whose self-awareness, satisfaction of desires, pursuit of pleasures and avoidance of pains, is much dissociated from phenomenal consciousness, it is not clear that we can correctly imagine a creature who would be like this. So, while we may be able to have knowledge regarding the moral significance of consciousness, it is not clear that we are able to have knowledge regarding the moral (in)significance of non-conscious mentality.

Some will respond that we do know something here. Insofar as unconscious pains or desire-frustrations or whatever occur in us, they do not appear to bother us at all. So why think they matter morally? One response is that it is not obvious that our unconscious pains have no moral significance. It is easy to see why we would think so—we have enough to focus on in the case of conscious pains, which are accessible to us and which take up much of our waking days. Carruthers makes this point well:

[C]onscious subjects are apt only to identify with, and regard as their own, desires which are conscious ...

from the perspective of the conscious agent, non-conscious desires will seem to be outside of themselves. Such subjects could, then, quite easily be mistaken in denying that the frustration of a non-conscious desire constitutes any harm to them. (1999, 478)

It is possible to imagine beings for whom pain or desire-satisfaction are significantly divorced from their conscious mental life<sup>5</sup>, and in such cases a case can be made for the moral significance of these unconscious states.

Whether these states are morally significant or not, my point here is that insofar as we lack access to these kinds of states, we lack the same kind of knowledge we claim to have about the moral significance of our conscious states. One might offer some general theoretical argument against the moral significance of non-conscious mentality. But the judgment of necessity is often not based upon such an argument. It is based, for many of us, on an imaginative episode. I am arguing that since this episode is incomplete, it is ill-placed to do any real moral work for us. The judgment of necessity is based upon differential access between conscious and non-conscious mentality. So it is not a good guide to differences regarding the moral significance of conscious and non-conscious mentality.

This argument does not depend upon the claim that zombies are inconceivable. Zombies may or may not be conceivable in the senses philosophers debate. The point, here, is that our knowledge that consciousness is morally significant is based upon introspection. But what humans introspect is nothing more than various aspects of consciousness.<sup>6</sup> Humans lack access to non-conscious mentality. So if non-conscious mentality had moral significance (i.e., non-derivative value), we could not come to know it in the same way. We may be able to conceive of zombies, but doing so gives us no introspective access to whatever might be of value in a zombie mental life. Arguably, many of us, lacking this access, jump to the conclusion that there is nothing valuable there. But this jump, being based upon ignorance, is unjustified.

### **Argument from Positive Goods**

The third argument takes a different line, and appeals to the positive goods available to the non-conscious.

Begin by considering objective list theories of well-being. These are theories that claim that what it is for a life to go well, for a person to have a good level of well-being, is for that life to “contain” a significant number of goods. Theorists disagree about the contents on the objective list, but common suggestions include desire-satisfaction, perfection of one’s nature (Hurka 1996), development of one’s capacities (Parfit 1984), self-respect, relationships of care (including friendship, romantic relationships, and parenting relationships with children), achievement, and knowledge (see Fletcher (2015) for a review). Certainly, in humans, consciousness is involved in various ways in the expression or development of many of these items. But this is because consciousness is involved in various ways in many aspects of human psychological life, of human action, of human achievement and knowledge and sociality. It is a further step to hold—and it is not something we can claim to know at present—that consciousness is essentially involved in any of these items.

There are many ways to make this point vivid: I will try two. Consider first, then, an entity with a very simple psychological life. I have in mind something like a snail (Schwitzgebel 2020)—an entity with something like 60,000 neurons (compared to 86,000,000,000 in a human), capable of crude forms of learning, mating, and behavioral flexibility. But this creature has only the most simplistic form of cognition. And assume that this creature is not conscious. Now say we come to have a decision—exterminate this creature for some minor convenience. Exterminate it to clear a field for some mediocre music festival. Consciousness-based theorists should have no problem with this, and perhaps many will not.

Now compare this entity with one that has a sophisticated psychological life. This latter entity is not conscious. But it is capable of at least analogues of what, in humans, would look like the satisfaction of desires, the acquisition of knowledge, the nurturing of relationships of care, the pursuit of long-term plans, and the realization of significant achievements.

Should we exterminate this creature for our minor convenience? The consciousness-based theorist says so. We move rocks around and uproot trees for minor conveniences. These creatures are no different.

But I confess that I lean toward the thought that at least the latter entity deserves protection. It does so, arguably, because it is engaged in a range of valuable pursuits—the rearing of its children, the development of relationships with conspecifics and perhaps other

<sup>5</sup>Carruthers’s (1999) Phenumb case is one example. Phenumb is conscious, but the satisfactions and frustrations of his desires provide no affect, such that “when he achieves a goal he does not experience any warm glow of success, or any feelings of satisfaction” (478).

<sup>6</sup>Zombies retain the capacity for introspection. Thus, zombies retain a kind of first-person perspective on their mentality.

species, the pursuit of plans and the satisfaction of goals and desires. In virtue of the presence of these objective goods in its life, the creature has some moral status.

Second, consider a creature with significant psychological sophistication, and sophisticated goals and projects, where these goals and projects revolve around helping others. Those who have read Ishiguro's novel *Klara and the Sun* (2021) might bring to mind something like Klara, the "artificial friend" and protagonist of the novel. We can suppose that this creature lacks phenomenal consciousness. But they retain significant agency, and it is plausible that their goals and projects have moral value. Now suppose that this creature has a limited lifespan, and that they desperately want to perform a series of actions that places certain others in a position to succeed in their life. The question is: does this being have moral status in virtue of having the psychological sophistication to have these goals and projects?

If one is worried that the others they wish to help are also non-conscious, just imagine that these others are normal human beings. What I am asking is whether consciousness in the helper is essential for their moral status. I do not see a good case for thinking so. Analogies with humans are conceptually dirty given the role of consciousness in our lives. But even so, I have a few goals and projects that involve helping others. This thought is contentious, but I submit that the success of these goals and projects is of great significance to the value of my own life, independently of any consideration to do with phenomenally conscious experiences related to these projects, and independently of any enjoyment or suffering related to these projects. More directly, I submit that it would be wrong to arbitrarily impinge upon the helper's execution of their planned series of actions, and that the wrongness obtains in virtue of the moral quality of the creature's goals and projects. The creature deserves, I want to say—and *ceteris paribus*, of course—the chance to make the difference that they wish to make. And to say that the creature deserves this kind of moral consideration is just to say that the creature has some degree of moral status.

Often, discussion of the relationship between consciousness and moral status begins with the presence or absence of suffering. There is good reason for this. Many hold a version of sentientism—a view on which, roughly, it is the valenced conscious experiences (experiences of pain, pleasure, grief, joy, etc.) that are the primary ground of consciousness's moral significance. And one might think that sentientism explains

the moral significance of consciousness in terms of how experiences feel—valenced experiences are valuable or disvaluable because they feel good or bad. The value is in the phenomenal character. If this is one's thought, then to imagine a non-conscious entity will be to imagine an entity with the value stripped away. The argument from positivity emphasizes that there may be more of value in a mental life than aspects of phenomenal character. Some will, of course, reply that these valuable elements nonetheless rely upon the presence of consciousness in some way. The argument from positivity identifies several candidates that do not conceptually rely on the presence of consciousness. It thus serves as a corrective against any inference from the value of phenomenal character in a mental life to the belief that without phenomenal character, all value goes away.

People will disagree. But if you hesitate, that is a sign that your confidence in the judgment that consciousness is necessary for moral status is wavering. And if this judgment is not robust against these arguments, then it is doubtful that this judgment should be given a central place in policy deliberations that attempt to be responsive to the moral status of non-humans.

### ***Meta-Argument from Uncertainty***

The consciousness-based family of views is deeply ingrained, and I do not think the arguments I have offered will move many completely off of the view. If, however, the arguments I have offered diminish confidence in the judgment of necessity, a different move may be available. In short, one might tentatively endorse a consciousness-based view of moral status, while endorsing a more open-ended approach to policy that appeals to the moral status of some class of animal or entity.

Speaking for myself—as someone who has defended a consciousness-based view in the past—these arguments do diminish my confidence in the judgment of necessity. Though I feel the pull of the intuition that underlies this judgment, I now think that the epistemic credibility of this pull is less than pristine.

Why think this matters? Facing a difficult philosophical question, it is common to take into view arguments for and against a position, to examine theoretical and practical consequences of a position, and to end up with a mixed assessment. Often philosophers will endorse a view *tentatively*, admitting that a different view has some merit, and that their own view has some regrettable consequences. But they will plow ahead, depending on the view as they think through related issues and disputes. This is well and good when charting a

philosophical picture of reality. We have to sacrifice perfection for consistency and coherence across a developing range of theoretical commitments. But when we apply philosophical positions to practical problems, we often have to compromise. It is desirable to find policies that can be grounded on features about which there is overlapping consensus. But, failing that, we have to find a compromise that is acceptable to most. And in figuring out which options may be acceptable to most, we should consider not only which view might win a majority vote, but also the levels of confidence stakeholders have in the range of views and options available. In general, low confidence should suggest a greater willingness to compromise—and more so, arguably, when the stakes of getting it wrong are high, as is the case regarding the practical implementation of theoretical considerations about the moral significance of consciousness.

It is, of course, difficult to say what levels of confidence should generate a willingness to compromise. I am not going to put an artificial number on it. The main aim of this paper is to encourage bioethicists, neuroethicists, and policy makers to consider whether policies that depend upon widely-held views about the value of phenomenal consciousness are plausible enough to go forward without consideration of alternative sources of value. And the point of this sub-section is to insist that even if one is not fully swayed by the arguments offered above, one might still be open to endorsing policies that offer protections on the basis of consciousness-independent features.

A further difficult question is this. Once we reject the judgment of necessity, what consciousness-independent features of an entity might be sufficient for moral status, or might impact an entity's degree of moral status? Answering this is to a large extent beyond the scope of the present paper, only because the theoretical task here is fairly big. The literature already offers several options—self-awareness, cognitive sophistication, the presence of affective states or systems, the ability to plan, the possession of narrative identities, and more.<sup>7</sup> One leading family of views tends to lump these kinds of features together under

<sup>7</sup>One might doubt that a system could possess some of these features (e.g., self-awareness or affective states) independently of phenomenal consciousness. But unless we assume a version of functionalism about consciousness, it is possible that a system could display whatever functional or behavioral manifestations we associate with, e.g., self-awareness or affective states, while lacking phenomenal consciousness. Of course, whether emotions, sensory states like pain, or self-awareness could be fully independent of phenomenal consciousness are topics of dispute in the philosophy of mind (see Rosenthal 1991; Shepherd 2017), so it remains debatable just what items might be on a list of features independent of consciousness.

the heading of “cognitive sophistication” (see Jaworska and Tannenbaum 2021). But it is unclear whether talk of cognitive sophistication is fine-grained enough to identify the range of features that may be morally significant.

In my view, it is probably better to think, first, in terms of features that are, in themselves, morally valuable, and thus may ground attributions of moral status. These may be related to cognitive capacities, and they may not—the notion of “cognition” does not have sharp boundaries. One might instead, for example, talk of the capacities required for features such as desire-satisfaction, development of one's capacities, self-respect, relationships of care, achievement, or knowledge. In the rest of this paper, I will gloss over such options by speaking of “consciousness-independent features.”

### **Practical Consequences**

How would a rejection or a downgrading of the judgment of necessity look in practice? In this sub-section, I consider two examples.<sup>8</sup>

Consider, first, the precautionary approach to the moral status of non-human animals. On a consciousness-based approach, the precautionary approach is motivated in part by epistemic difficulties confronting any attempt to decide which animals possess consciousness, and which do not.<sup>9</sup> Birch (2017) proposes a precautionary principle that specifies an epistemic bar we need to clear, and an action rule that we need to follow once the bar is cleared:

BAR: For the purposes of formulating animal protection legislation, there is sufficient evidence that animals of a particular order are sentient if there is statistically significant evidence, obtained by experiments that meet normal scientific standards, of the presence of at least one credible indicator of sentience in at least one species of that order.

ACT: We should aim to include within the scope of animal protection legislation all animals for which the evidence of sentience is sufficient, according to the

<sup>8</sup>A referee raises the point that a rejection of the judgment of necessity might create a route to the consideration of the moral status of plants. For some argue that plants display features of cognition, mentality, or goal-directed behavior (Maher 2017). (In step with this, some also argue that plants may be conscious.) In my view, we should not rule out the possibility that folk psychology is very wrong about the mentality, or the moral status, of something. So we should be open to changing our minds about things like plants if our best evidence pushes in that direction.

<sup>9</sup>Aspects of the problem have been covered by many (see Dawkins 2008; Shepherd 2018b; Carruthers 2019; Murray 2020; Shevlin 2020; Birch 2022; Sawai et al. 2022; Johnson 2022). Ways to address it have been fruitfully discussed as well (see Shea and Bayne 2010, Shea 2012, Birch 2022). But the problem remains serious.



standard of sufficiency outlined in BAR. (Birch 2017, 5)

I regard a precautionary approach to animal moral status as promising, even if issues remain regarding, for example, the appropriate place for an evidential bar, how to formulate a principle that is neither over- nor under-inclusive (Woodruff 2017), and whether and how a precautionary principle could reflect something like levels of moral significance in differently conscious animals (Klein 2017; Shepherd 2021). But if we downgrade the judgment of necessity, we have to think about a precautionary principle that is not (only) consciousness-based.

First, since consciousness-independent factors may be present in animals in the absence of solid evidence regarding sentience, the evidential bar needs additional sources, beyond the science of phenomenal consciousness.<sup>10</sup> Second, the action rule may need to expand, and to take a disjunctive form. Third, since consciousness-independent factors may influence an animal's level of moral significance, attention to tradeoffs between animals may need to attend to evidential factors beyond those regarding phenomenal consciousness.

Consider, as a second example, the structure of recent policy debate regarding cerebral organoids. It is often assumed that the key issue is the determination of whether an organoid is or has the potential to develop consciousness (Koplin and Savulescu 2019; Niikawa et al. 2022). Koplin and Savulescu, for example, argue that while research using non-conscious organoids can be regulated by “existing frameworks for stem cell and human biospecimen research” (2019, 765), additional regulation is needed in the case of conscious or potentially conscious organoids.

But it may soon be possible to integrate cerebral organoids (whether human or not) with synthetic material, creating synthetic biological intelligences. In unpublished work, Kagan et al. (2022) report the creation of *DishBrain*, a structure that places organoids into a computational framework using a silicon high-density multi-electrode array. This set-up allowed them to control the feedback organoid neurons receive, and to monitor neural output. After embedding this set-up computationally into a simulation

that functionally mimicked the game “Pong,” Kagan et al. report that the organoid-silicon system demonstrated evidence of learning in response to feedback.

*DishBrain* serves to illustrate the possibility of organoid-involving systems that achieve some level of agency. It may soon be the case that organoid-involving systems display a range of morally relevant, consciousness-independent features. If so, pressing forward with a consciousness-based approach to moral status may fail to account for the moral significance of a range of systems relevant to biomedical and neuro-computational research. This is because existing frameworks for stem cell and human biospecimen research do not consider the relevant range of possibilities. If we downgrade the judgment of necessity for policy-guidance purposes, the relevant range of possibilities will need to be considered, with an eye to the moral significance of consciousness-independent features.

## CONCLUSION

I have outlined the primary options for taking a consciousness-based approach to non-human moral status, as well as options for taking an alternative approach. And I have offered arguments against the judgment at the root of the consciousness-based approach. Moving beyond a consciousness-based approach will require further consideration of the features that, independent of consciousness, may have moral significance.

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<sup>10</sup>It is worth noting, though, that whatever we think of this alternate approach, it will still be possible to apply insights gained from work on “levels of consciousness” (Bayne, Hohwy, and Owen 2016) or “dimensions of consciousness” (Birch, Schnell, and Clayton 2020). For such work is functionalizable, in a way. Such work often approaches consciousness from a third-personal perspective, and outlines levels or dimensions in terms of psychological capacities, rather than in terms of anything essential to phenomenal consciousness. Such work can thus be integrated with approaches that emphasize consciousness-independent features.

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