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The Near-Death Experience Argument Against Physicalism

A Critique

Abstract: *Physicalism is the thesis that everything is physical, including the mind. One argument against physicalism appeals to near-death experiences (NDEs), conscious experiences during episodes, such as cardiac arrest, when one's normal brain functions are severely impaired. The core contention is that NDEs cannot be physically explained, and so we have reason to appeal to the non-physical in explaining them. In this paper, we consider in detail a recent article by Pim van Lommel in which he appeals to NDEs in arguing against physicalism and in favour of an alternative conception of the mind as non-localized and immaterial. Our main contentions are, first, that it is not clear that physicalism cannot accommodate the phenomena of NDEs and, second, that it is not obvious how the conception of the mind as non-localized and immaterial is supposed to help.*

There are two main views about the relationship between the mind and the body. The *physicalist* claims that everything is physical, so the mind is not a different kind of thing than the body. The *dualist* denies that everything is physical and claims that the mind is a fundamentally

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different kind of thing than the body.¹ Nowadays, physicalism is the default position.² But there are serious challenges to it.

A familiar strategy for challenging physicalism is to present cases that purport to show that complete knowledge of all physical facts does not entail complete knowledge of all mental facts. This is the knowledge argument against physicalism. It begins from the claim that there are ineliminably subjective conscious experiences, called qualia. But a complete description of the physical facts is objective. So one might know all of the physical facts about a given experience and yet lack knowledge about what it is like to have that experience, i.e. one might lack knowledge of qualia. Perhaps the experience is of a kind that is so alien to one's own form of life that one cannot even imagine what it would be like to have it. We might think that this would be the case with respect to experiences like using sonar as a bat does (Nagel, 1974). Or perhaps one has up until now been incapable of having a given conscious experience, even though one has a perfect grasp of the physical facts that describe it. Supposing one became able to have the experience, one would then gain new knowledge, over and above what one knew given a complete grasp of the physical facts. We might think that this would be the case with respect to someone, blind from birth, with a complete grasp of the physical facts involved in the experience of seeing red who becomes sighted and has this experience for the first time (Jackson, 1986).

It is not our aim to consider the merits of the knowledge argument, but rather the merits of a similar but different line of attack against physicalism.³ There are some who report having had conscious experiences during episodes, such as cardiac arrest, when their normal brain functions are impaired to such a degree that we would not expect them to be capable of conscious experience. Sometimes these reports include perceived events that really did occur in and around the location of their bodies. For example, one woman reported hearing a conversation between a doctor and nurse and witnessing an unexpected medical procedure during the time in which she was undergoing preparation for brain surgery. Both the conversation and procedure really did occur during a time when she was under anaesthesia, with her eyes

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- [1] For our purposes, we can ignore distinctions between different versions of dualism and physicalism. We can also put to one side idealism, which claims that everything is mental. We will use 'non-physical' interchangeably with 'immaterial'.
- [2] For an extended defence of 'Antecedent Physicalism', see Perry (2001).
- [3] We will also set aside other well-known arguments against physicalism, such as the modal and zombie arguments. For discussion of these and other arguments against physicalism, see Perry (2001) and Chalmers (1996).

taped shut and speakers moulded to her ears emitting a loud, repetitive click and her brain monitored in several ways for activity, of which it registered none.⁴ This reported experience is puzzling. The normal explanation of why one sees or hears things does not apply in this case. These events occurred during a time when the woman seemed incapable of seeing or hearing anything. Moreover, she showed no signs of the brain activity normally attendant with visual or auditory perception. Yet she reported hearing and seeing things that really happened.

Some have argued that near-death experiences (NDEs), such as the above, tell against physicalism and in favour of an alternative conception of the mind as non-localized and immaterial. In this paper, we will consider in detail Pim van Lommel's recent attempt to do so in this journal (van Lommel, 2013).⁵ Our main contentions will be, first, that it is not clear that physicalism cannot accommodate the phenomena of NDEs and, second, that it is not obvious how the conception of the mind as non-localized and immaterial is supposed to help.

1. The NDE Argument Against Physicalism

There are at least two versions of the NDE argument against physicalism, one weaker and one stronger. In its weaker form, the NDE argument seeks to establish, not that NDEs show physicalism to be false, but rather that they provide a basis for increasing our confidence in its falsity. This version of the argument may be put as follows:⁶

1. We have verification that at least some NDEs are real conscious experiences had at the time they are purported to have been had.
2. There are no known adequate physical explanations of the relevant phenomena.
3. We know a great deal about relevant physical mechanisms, and it is unlikely that we will discover new physical mechanisms capable of explaining them.

[4] This case, among others, is discussed in Holden (2009), borrowed from Sabom (1998). We focus on NDEs that present cases of apparently veridical perception because we think these present the strongest challenge to physicalism.

[5] See also van Lommel (2010).

[6] We would like to thank David Chalmers for suggesting this line of reasoning in personal correspondence.

4. Thus: we are warranted in increasing our confidence in the claim that an adequate explanation of NDEs would appeal to the non-physical.
5. Thus: the phenomena of NDEs may reasonably be taken to support increased confidence in the claim that not everything is physical.

While not obviously problematic, we think that there is good reason to resist this argument. In particular, we think that the third premise is false; given the nascent state of the relevant sciences (e.g. neuroscience), it is reasonable to expect significant progress in the future. We thus think that no good reason has been offered to accept either conclusion. We shall argue for holding out hope that future scientific examination of the relevant issues will provide physical explanations of the phenomena.

We make this argument in §2 of this paper. But even if one remains unconvinced by what we say there, we devote §3 to establishing that non-physical explanations face significant challenges that may outweigh apparently good reasons to increase our confidence in the need to appeal to the non-physical in explaining NDEs. It is just not clear that we achieve greater explanatory power by appealing to the non-physical in our explanations of NDEs.

While we find the weaker form of the NDE argument against physicalism (just presented) unconvincing, we find it more reasonable than the stronger version. In its stronger form, the NDE argument against physicalism may be put as follows:

1. We have verification that at least some NDEs are real conscious experiences had at the time they are purported to have been had.
2. Any complete explanation of these NDEs must appeal to the non-physical.
3. Thus: not everything is physical.

This version of the argument shares its first premise with the weaker version, but it goes on to assert a much stronger claim about the inadequacy of physicalist explanations of NDEs and to draw a much stronger conclusion about the prospects of physicalism. We find it unconvincing for many of the same reasons as we find the weaker version of the NDE argument unconvincing. But we think it has unique failings as well. Most saliently, it reflects a tendency to draw too hasty and too strong conclusions from the evidence and it relies on an overly restrictive conception of what is required for something to serve as an

adequate explanation of NDEs. We address these points in turn in §§2–3.

Before moving on to our critical examination of the NDE argument against physicalism, it is worth saying something about why we think it is important to address the stronger version of the argument. It may seem as though this argument is a straw man, not actually attributable to anyone in the literature, and that the points we make against it are obvious.⁷ But we think that there is good reason to attribute the strong version of the NDE argument against physicalism to van Lommel, a prominent NDE researcher and advocate of a non-physical explanation of the phenomena. We aim to show that the plain meaning of van Lommel's words in context, in particular, in his 2013 article in this journal, suggests that he aims to make the NDE argument against physicalism in its strong form.⁸ One reason it is worth taking seriously, then, is that it has been put forth by a prominent figure in the literature on these issues.⁹ One reason it is worth challenging this argument as we do, even if some of the claims seem obvious, is that it is worth making explicit the problems facing a familiar and influential view in the literature. Moreover, and as we have already noted, some of the reasons for rejecting the strong version of the NDE argument against physicalism are also reasons for rejecting the weaker version. Thus, our discussion should be relevant even to one who finds the weaker version of the argument the only plausible one.

2. Can Physicalism Accommodate the Phenomena?

Both versions of the NDE argument against physicalism share with the knowledge argument, mentioned in our introduction, the supposition that one knows relevant physical facts. In the case of the knowledge argument, the relevant physical facts are all those related to a given conscious experience, such as seeing red. In the case of the NDE argument, the relevant physical facts are all those related to verifying the reality, content, and timing of a reported conscious experience while in severe physical distress. Though they share the supposition that relevant physical facts are known, these two lines of argument establish it in very different ways. The knowledge argument rests on

- [7] We would like to thank two anonymous referees for this journal for prompting us to make these points explicit.
- [8] We think that what van Lommel says in his 2010 book further corroborates our attribution to him of the stronger version of the NDE argument against physicalism.
- [9] The strong version of the NDE argument against physicalism has been offered in print by others as well. See, for example, Long and Perry (2010) and Alexander (2012a,b). Alexander (2012a), in particular, has been widely discussed.

thought experiments in which we simply stipulate that the supposition is true. The NDE argument, by contrast, rests on an empirical premise. We are supposed to have verification of all the physical facts relevant to NDEs.¹⁰

This appeal to empirical support is both a potential strength and a potential weakness of the NDE strategy for arguing against physicalism. It is a potential strength because having an actual case where the phenomena outstrip knowledge of all relevant physical facts is more compelling than positing a conceivable state of affairs in which this is true. It is a potential weakness because it can be quite difficult to establish that one really has the claimed verification. In this section, we give several reasons to think that the NDE argument against physicalism as presented by van Lommel is lacking in this respect. As van Lommel's discussion canvasses a good deal of the relevant literature, we take these points to generalize to a fair degree. Thus, we conclude, it is not at all clear that physicalism cannot accommodate the phenomena of NDEs.

A. The Prospects of Science

We begin with some general remarks about the prospects of a scientific explanation of consciousness. This issue is relevant to the NDE argument against physicalism because NDEs seem to be conscious experiences and scientific explanation is given in physical terms. If there is, in general, no scientific explanation of conscious experience, there is no physical explanation of NDEs in particular.¹¹

Consciousness is something of an embarrassment to science. We know that we normal, adult human beings are conscious (and suspect — perhaps even know — that other creatures are as well), yet there is far from a consensus that we can explain consciousness or conscious experience by scientific means. Many think that our current understanding of the workings of the brain is insufficient to explain the phenomena. But we should not conclude from the fact, supposing it is a fact, that we are currently unable to provide a scientific explanation of consciousness that such an explanation is not forthcoming. It is problematic to conclude that science will never explain consciousness from the fact that it currently does not.

[10] Paterson (1995, p. 131) prefaces his discussion of NDEs by noting also a second point of contrast with the knowledge argument. It proceeds by way of induction.

[11] Though we have not defined 'physical', it is appropriate, for our purposes here, to take the term to refer to the objects of scientific explanation, where scientific explanation is understood to admit as explanans only measurable, observable phenomena.

In the context of his argument against the prospects of a physical explanation of NDEs, however, van Lommel does exactly this. Take, for example, his claim that ‘current scientific techniques are incapable of measuring or demonstrating the content of thoughts, feelings, and emotions’, which he follows with the claim that ‘[a] purely materialist analysis of a living being *cannot* reveal the content and nature of our consciousness’ (van Lommel, 2013, p. 37, emphasis added). The first claim registers the dim prospects of science as currently practised. But the second claim is plainly read as being much stronger, denying the possibility of a physicalist understanding of the relevant phenomena.

One might object that the plain reading of van Lommel’s words is uncharitable.¹² Perhaps when he claims that physicalism ‘cannot’ explain consciousness he really means that it ‘cannot, pending further developments’, explain consciousness. The first of his claims quoted above, about the current state of science, may seem to support this alternative reading. But we think that the wider context of these quotations tells against it. The quotations just given conclude a section in which van Lommel discusses what he takes to be the limits of the narrow, physicalist paradigm in the sciences and are followed by the beginning of his discussion of his preferred, non-physicalist explanation of consciousness. The impression that this overall context gives is that we should leave the old, physicalist paradigm behind for a new, non-physicalist one. If van Lommel had meant to leave open the serious possibility that consciousness might be explained in physicalist terms, one would have expected him to make some remarks about how scientific research within the old, physicalist paradigm might best proceed. But he does no such thing.¹³

Van Lommel’s claim here is problematic because there are some obvious reasons for denying that no physical explanation of consciousness is forthcoming. One is the evident progress of science itself. Our methods of measurement and observation are improving all the time. For example, we are now able to measure electrical activity and blood flow in the brain. We were not always able to do this. And we should expect our techniques for measuring brain activity to improve. We will devise more precise versions of current tech-

[12] We would like to thank an anonymous referee for this journal for pressing this objection in response to an earlier version of this paper.

[13] If van Lommel had meant to convey what this alternative reading suggests, then why didn’t he just say so? Rather than claiming, flatly, that physicalism cannot explain consciousness, why not explicitly mention the possibility that further scientific developments might improve the prospects of a physicalist explanation of the relevant phenomena? The natural reading of what van Lommel says is exactly that: physicalism cannot explain consciousness.

nologies and invent new technologies as well. Just as the methods we currently employ have allowed us to learn a great deal more about the brain than we ever knew or expected to know, the methods we will employ should be expected to reveal new insights. In some instances, we may be able to provide educated guesses about what this new knowledge will be, but we should expect surprises as well.

We may, for example, come to find out that our current methods for measuring brain activity were shallow, capturing only activity above a certain threshold, but unable to capture all brain activity, or even all brain activity relevant to conscious experience. We may come to find out that some of those patients whom we thought had lost all brain function in fact had brains functioning at a level undetectable by our current methods. In particular, it is possible that this is true of those who have NDEs while showing no brain activity measurable by our current methods. These are not only reasons for denying the bold claim that a physicalist explanation of consciousness is impossible, but also for denying the claim, which is a central premise of the weaker NDE argument against physicalism, that we know a great deal about the relevant physical mechanisms and are unlikely to discover new ones. Hence, these remarks bear on the merits of both versions of the NDE argument against physicalism.

Our complaint is not that van Lommel is wrong to scrutinize common assumptions behind physicalist views about consciousness.¹⁴ Rather, it is that he is hasty in drawing the conclusion that physicalism is false on the basis of this scrutiny. And we think it would be similarly hasty to conclude that our current state of scientific knowledge is so great, and its prospects for improvement so dismal, that we are warranted in increasing our confidence in the explanatory relevance of the non-physical.

[14] Many of van Lommel's reflections on the current state of scientific investigation into the relevant phenomena are helpful. For example, we agree with him that even if there is some brain activity, perhaps undetectable using current methods, this does not show that the brain was functioning as necessary to support consciousness, on the assumption that consciousness does require brain functioning. We also agree with him that correlation does not establish causation. We are not warranted in concluding that brain activity produces conscious experience just because observation of brain activity is correlated with conscious experience. The mere correlation of the two phenomena is, for example, consistent with the brain receiving and transmitting, as opposed to producing, consciousness once relevant activity reaches a certain threshold. On this thesis, see James (1898). See also Paterson (1995, p. 148), where he considers the possibility that low levels of brain activity may serve the function of recording, as opposed to producing, consciousness.

B. All About Timing

Let us turn now to consideration of empirical evidence for NDEs. It is important to the NDE argument against physicalism, in both forms, that some NDEs have the following features.¹⁵ First, they must be real experiences, in the sense that subjects actually did have the experiences of seeing, hearing, etc. the things they report seeing, hearing, etc. Unless they exhibit this feature, NDEs fail to provide episodes of conscious experience in need of explanation. Second, these subjects must have really had these experiences during a time at which there would be no ready physical explanation of them. Unless they exhibit this second feature, NDEs fail to provide episodes of conscious experience that apparently outstrip the explanatory power of science.¹⁶

We do not here doubt the sincerity of many of those who report having NDEs and will not raise any questions about empirical evidence that some NDEs are real experiences. That is, we will assume that there are NDEs that exhibit the first feature necessary for the NDE argument against physicalism. We do, however, think there is room to doubt that there are NDEs that exhibit the second feature necessary for the NDE argument against physicalism. There is room for scepticism about the claim that the subjects of NDEs really had these experiences at the relevant time. For all we know, it is possible that in every case the subject had an experience *as if* it were at a time, t , when, in fact, the experience was had at some other time, t^* . And it is possible that, though t was a time at which the subject's brain functioning was severely impaired, t^* was a time at which this was not the case.

We are not alone in this sceptical stance. Eben Alexander recently published an account of a profound NDE, which he had while lying in a hospital bed in a coma (Alexander, 2012a,b). During his coma, Alexander's brain functioning was monitored and did not register activity that, according to our current knowledge, would support consciousness. Yet he experienced a wondrous seven-day episode, which he has been able to recount in immense detail. Alexander has not been able to make sense of his NDE in physical terms. As a neurosurgeon, he cannot reconcile his apparent lack of brain functioning with the vividness and detail of his experience. But several authors have raised

[15] Strictly speaking, the NDE argument against physicalism requires that at least one NDE have the following features. But the more NDEs that fit the bill, the more persuasive the argument will be.

[16] Several definitions in the literature (e.g. Holden, 2009, p. 185; van Lommel, 2013, p. 8) include a third feature to those mentioned in the text, namely that one's consciousness be experienced as disembodied. This feature does not seem to be necessary for the success of the NDE argument against physicalism.

the possibility that the key to making sense of what happened is to recognize that, while Alexander's experience was as if he saw and heard things during the seven days of his coma, it is possible (perhaps likely) that the experience occurred during the short time his brain was coming out of the coma and restoring its normal functioning.¹⁷

The possibility of a disconnect between subjective time (experienced time) and objective time (clock time) is familiar from experiences other than NDEs. One can experience a dream as if it lasted for hours, when in fact the processes in the brain that account for the experience lasted only a short time. The same holds of hallucinations, such as those induced by certain drugs. We take it that no one is seriously proposing that dreams and drug-induced hallucinations defy common sense and scientific explanation. So there is nothing particularly mysterious or problematic for physicalism about the general claim that the content of one's experience might be of an event (or events) experienced as occurring at a given time or for a given duration, when in fact the experience that has this content occurred at some other time or for some other duration.

We should distinguish between the subjective time of experienced content and the objective time of the having of the experience with this content. Given this distinction, it would be hasty to conclude from a report of a real NDE, the content of which was experienced as occurring at time t , that the NDE was actually experienced at t . In order to have verification of the fact that a given NDE was actually experienced at the time it seemed to the subject that he experienced it, we would need more than just evidence that the subject really had the experience he reports having.

[17] See Sacks (2012) and Harris (2012). It is also possible that Alexander's is a case of 'doxastic hallucination', in which he never had the experience he believes he had. (See Schwitzgebel, 2013.) It is possible that Alexander came, for whatever reason, to believe that he had the seven-day near-death experience he describes having and that he came to believe that he had it during the time at which he was in a coma. And yet his reasons for believing that he had this experience may have nothing to do with its reality. He may never have had any experiences of the sort he believes that he had. We would like to thank Schwitzgebel for bringing this possibility to our attention.

C. Veridical Contents

Perhaps we can get the extra evidence we need by verifying the content of the experience. If the content of one's experience represents a unique way the world was at a given time, t , it seems safe to assume that one had the experience at t .¹⁸ If one experienced this content as if it occurred at t , it thus seems safe to conclude that one really had the experience at the time at which it seemed to one that one had it. In this way, it seems we can close the gap opened up by the distinction introduced in the previous section.

Consider the following case of a patient who had an NDE that included an out-of-body experience (OBE) while undergoing CPR during cardiac arrest (van Lommel, 2013, pp. 18–9; taken from van Lommel *et al.*, 2001). The hospital staff were unable to locate the man's dentures until, days later, he saw one of the nurses who had attended his CPR and related that he had, from a location above the action in the hospital room, seen what was happening to his body. The patient told the nurse that he, the nurse, had taken his dentures out and placed them in a drawer, to be subsequently forgotten. The mystery of where the patient's dentures went was solved because the patient was able to tell the hospital staff where they had been placed while he was comatose. And he was able to tell them this information because he had experienced seeing the procedures occurring during his cardiac arrest from a position outside his body. The content of this man's NDE was such that it matched a unique way the world was at the time he was comatose, and the details were verified to be accurate. The nurse recalled taking out his dentures and placing them exactly where the patient said he had.

It seems safe to conclude that the man in this case had his NDE at the time it seemed to him that he had it because the contents of his NDE represent a unique way the world was at that time. This is in contrast to an NDE like Alexander's, the content of which was, first, not able to be corroborated by others and, second, not representative of a unique way the world (containing his body) was at a given time. While the content of Alexander's NDE could have been experienced at

[18] The phrase 'a unique way the world was' is not meant in any metaphysically loaded sense. The point of requiring that the world be a certain way is to provide means for objectively verifying the content of the experience. The point of requiring uniqueness is to rule out cases such as, for example, the experience of seeing the traffic light at the end of one's street turn red. This happens many times a day, so it would be impossible to glean, from the reality of this experience, at what time of day the experience was had. This is in contrast to a case of, say, experiencing seeing two cars collide at the intersection. It seems safe to assume that the same two cars do not collide at the same intersection in the same way twice.

various times, it seems as if the content of the cardiac arrest patient's NDE could not have.

But things are not always what they seem. Even though the cardiac arrest patient reported seeing what was happening to his body and was able to accurately describe aspects of his treatment and the appearances of those treating him, it is possible that he constructed this visual experience from other materials than visual perception of what occurred.¹⁹ He was in the hospital for several days, so it is possible that he interpreted back into his NDE accurate representations of the faces of some of those who gave him CPR. And, incredible though it may be, it is possible that he was able to report what happened to his dentures without ever witnessing what in fact did happen to them. Perhaps he saw other patients' dentures removed and placed in similar locations. Or perhaps, while unconscious, he registered the feeling of having his dentures removed and the sound of the drawer being opened and them being placed in it. After regaining consciousness, he might have (subconsciously) pieced together these sensations, registered while he was unconscious, into the account he gave to the nurse. While not quite accidentally true, it may, nevertheless, have been incredibly felicitous that the account he pieced together was accurate. None of these possibilities is ruled out by the fact that the content of this man's NDE was corroborated by the nurse.²⁰

Similar care is needed in interpreting other NDEs, the contents of which have been verified by others. Consider, again, the case of the woman who experienced hearing a conversation between the doctor and nurse during her preparation for brain surgery. She reported hearing this conversation, even though her ears had speakers moulded into

[19] Interestingly, the account van Lommel provides of this man's NDE is out of the nurse's mouth. Moreover, the nurse does not attribute to the patient the report of seeing him (the nurse) handle his dentures. The nurse says that the patient reported seeing his body undergoing CPR and quotes the patient as telling him about what he did with his dentures. But he does not quote the patient as saying that he saw him remove his dentures and put them away. This is noteworthy in light of the assumption, which we are granting for the sake of argument, that the patient really did have the reported conscious visual experience of seeing people resuscitating his body. Our contention is that this experience may not have occurred through the normal means, namely, visual perception. And since the nurse's account of the patient's report does not include mention of a visual experience of seeing him remove the patient's dentures, it is possible that the veridicality of the visual experience the patient reported having actually has nothing to do with his dentures. The patient may not have had the experience of seeing his dentures being removed, though he may have come to know that they were by other means. So the actual removal of his dentures may not correspond to any part of the patient's reported conscious experience.

[20] This is all, of course, to treat the nurse's corroboration as genuine. From the account as given by van Lommel, it is possible that the nurse conformed his memory of events to the report given by the patient days later. This raises issues, which we put to one side, about the methods by which the contents of reported NDEs are to be verified.

them, emitting rapid clicks at higher decibels than that of a normal conversation. The purpose of the speakers and clicks was to monitor her brain functioning. One sign that her brain was offline was that it did not show perception of the sounds being pumped into her ears. In these circumstances, it would be incredible if the woman were able to hear the conversation by normal means. It is even more incredible, given that she did not report hearing the clicks.²¹

It does not, however, seem impossible that these sounds registered, somewhere in the woman's brain, and that they were brought to her conscious awareness after her brain functioning was restored. That is, this woman may have, at some later time, become consciously aware of auditory impressions that her brain received, at some earlier time, and that she did not, at that earlier time, consciously experience. Perhaps the auditory impressions were not picked up by the instruments monitoring her brain functioning because they registered somewhere unexpected or at a level or location not measurable by current methods. And it is possible that she did not report the sounds of the clicks because they did not, at the later time, come to her conscious attention, even though the sounds of the conversation did. When the woman reported the contents of her NDE, they indeed represented a unique way the world was at the time at which it seemed to her as if she was having the experience. Yet it is an open question whether she really had the experience she reported having at the time it seemed to her that she had it. The time at which the conversation came to her conscious attention may not have been the time at which the conversation was had between the doctor and the nurse.²²

The general point here is that one might report an NDE, the content of which includes a conscious experience one actually had and which is verified to represent a unique way the world was at a time during which one's brain functioning would not plausibly support conscious experience, and yet it may be that one never actually had the experience it seems to one that one had at the time it seems to one that one had it. One might, for example, report having a conscious visual experience that did not arise in the usual way. Perhaps, for example, it was

[21] See Holden (2009, pp. 198–9).

[22] We are not raising the possibility that the woman was conscious at the time that the conversation took place. Rather, we are raising the possibility that, even though she was unconscious, auditory impressions may still have registered, such that they could have come to her conscious awareness later. Thus, the point we are making here is different from the one made by, for example, Woerlee (2008). For this reason, it is not subject to the same critique, offered in response to Woerlee's article, by Smit and Rivas (2010). (We would like to thank an anonymous referee for this journal for calling this exchange to our attention.)

cobbled together after the fact from other experiences one did have. And yet this experience may represent something that actually happened. This would be akin to having a dream or hallucination that represents something that actually happened. Or one might report having a conscious auditory experience at a given time, when in fact one became conscious of auditory sensations at a later time than one's auditory system received them.²³ This would be an instance of a conscious experience being generated by a deviant process involving the normal, physical mechanisms. Because the usual mechanisms are implicated in the process, the veridicality of the experience would not seem mysterious. We can make sense of why one might report hearing sounds that originated in actual events that made auditory impressions on one's auditory system. It may be mysterious why these impressions did not register in consciousness immediately, or why some impressions registered in consciousness while others did not. But these are different mysteries than why the conscious experience matched reality. Though strange, physical explanations of these kinds do not seem impossible. And they certainly do not seem any stranger than disembodied consciousness.

Further support for the claim that physical explanations of NDEs should not be ruled out comes from the results of controlled experiments that have attempted to rule out physical explanations of NDEs. One kind of experiment focused on the OBEs that are often parts of NDEs and involved a card deliberately placed such that a patient could not see it from the operating table (for example, on a shelf out of the range of the patient's vision from the operating table). There has never been a case of a patient in a hospital or controlled scientific setting reporting the presence or contents of such a card.²⁴ In light of these difficulties, it seems physical explanations should remain on the table.

Van Lommel notes these same difficulties but draws a very different conclusion from his consideration of OBEs. He writes:

In a recent review of 93 corroborated reports of potentially verifiable out-of-body perceptions during NDE it was found that about 90% were completely accurate, 8% contained some minor error, and only 2% were completely erroneous. [Here van Lommel cites Holden, 2009.] This strongly suggests that OBE cannot be an hallucination, i.e. experiencing a perception that has no basis in 'reality', like in psychosis, neither can it be a delusion, which is an incorrect assessment of a correct

[23] Greyson *et al.* (2009, p. 229) cite some other authors who make a similar point with respect to out-of-body experiences.

[24] For a nice overview of relevant studies, see Holden (2009, pp. 203–9).

perception, nor an illusion, which means a misapprehension or misleading image. (van Lommel, 2013, p. 18)

He goes on to make a remarkable analytical leap:

Based on the many corroborated cases of veridical perception from a position out of and above the body during NDE it seems obvious that perception really can occur during an OBE, and that missing a hidden target [such as a card placed so that it is not visible via physical means from an operating table] during an OBE must be the result of a lack of intention and attention for this unexpected hidden object because patients are too surprised to be able to ‘see’ the resuscitation of their own lifeless body from above during their cardiac arrest or surgery. (*Ibid.*, p. 20)

That is, van Lommel claims that, given the many corroborated cases of veridical reports associated with NDEs, it ‘seems obvious’ that the reported contents are generated through non-sensory perception and thus that the reports cannot be explained in physical terms.²⁵ Further, he claims that it ‘seems obvious’ that the failure to report strategically placed cards must be due to ‘inattention’ or some related psychological tendency.

But we contend that these conclusions are anything but obvious. That is, it is not at all obvious that we can conclude from the accuracy of the reports (assuming, what is controversial in some quarters, that the reports are in fact accurate) that they are based on non-physical mechanisms. Indeed, the author cited by van Lommel, Janice Holden, comes to a very different conclusion based on the same data (and in the same article referred to by van Lommel). Even though there are a few cases where, she claims, ‘most investigators have ruled out alternate explanations to the hypothesis of nonphysical perception’, she cautions that ‘because of the uncontrolled nature of anecdotal cases, alternate explanations remain open to debate; for these reasons, controlled investigation of AVP has seemed warranted’ (Holden, 2009, p. 210). Moreover, as she notes, none of the five reported controlled investigations has yielded any cases of apparently veridical perception during an NDE. We agree with Holden that physical explanations should remain on the table and that controlled investigation seems warranted.

Clearly, it is important to distinguish the fact that many of the cases in question involve accurate reports from the issue of whether these reports must have been generated via non-sensory or non-physical

[25] This seems to be a clear instance in which van Lommel is presenting the stronger version of the NDE argument against physicalism.

means. It does not follow from the fact that the veridicality of the content of an NDE has been corroborated that its non-physical basis has similarly been corroborated. Whereas Holden is careful about this point, van Lommel leaps to a conclusion about the latter issue — non-physicality — on the basis of inadequate evidence; although he relies on Holden's work, she herself is careful *not* to conclude that there could not be physical explanations for the reports in question. The data do not support this conclusion.²⁶

It may, however, seem that the data may support the weaker conclusion (associated with the weaker interpretation of the NDE argument against physicalism) that we are warranted in increasing our confidence in non-physical explanations of the NDEs in question. Given the high rate of accuracy in the relevant reports, and given that there is, currently, no adequate physical explanation of how these subjects could have come to have the experiences they report having, it may seem reasonable to conclude that the forthcoming explanation will be non-physical. But, as we shall go on to argue in the next section, it is not clear whether the prospects of a non-physical explanation are all that good. In particular, it is not clear that the explanatory gaps left by a non-physical explanation are any less problematic than those that are left given our current best physical explanations. Thus, it is not obvious that we really are warranted in increasing our confidence in non-physical explanations of NDEs.

3. Does a Non-Local, Immaterial Consciousness Help?

Recall that the NDE argument against physicalism, in both forms, begins from the claim that we have verification that at least some NDEs are real conscious experiences had at the time they are purported to have been had. We have just argued that there is room for scepticism with respect to this claim. The veridicality of the contents of an NDE is no guarantee of the timing of the apparent experience. We have also argued that, contrary to what he explicitly claims, van Lommel has not shown that physical explanations of the phenomena related to NDEs are necessarily unavailable or inadequate. Given the possibility of progress in our scientific understanding of the relevant phenomena, it is not plausible that we must turn away from physical explanations of NDEs. This is a reason to reject the second premise of the stronger version of the NDE argument against physicalism. It is also a reason to reject the third premise of the weaker version of the

[26] For another example of drawing a more careful conclusion on the basis of evidence similar to what van Lommel considers, see Paterson (1995, pp. 148–9).

argument. So far, then, we have presented challenges to the central claims of both versions of the NDE argument against physicalism.

We turn now to van Lommel's preferred non-physical explanation of the phenomena and make three additional points. First, it is puzzling how appeal to a non-local, immaterial consciousness is supposed to help in providing a complete explanation of NDEs. Second, it is not obvious why the non-local consciousness to which he appeals is supposed to be immaterial. Finally, there are familiar reasons, independent of (but also applicable to) debates about NDEs, to be sceptical of the ability of an immaterial consciousness to make sense of conscious experience. These points bear on both versions of the NDE argument against physicalism. If appealing to the non-physical does not increase our ability to explain NDEs, then we should not think, as the stronger version of the argument claims, that we must appeal the non-physical or, as the weaker version claims, that we should increase our confidence in the adequacy of explanations that appeal to the non-physical.

A. Explaining NDEs

Van Lommel considers four explanations of NDEs that fit within the reigning scientific paradigm: lack of oxygen, high CO₂, oxygen deficiency, and drug use. In each case, he objects that it fails as a complete explanation. On the one hand, he objects that certain explanations fail to explain all cases of NDEs. For example, he objects to appeals to lack of oxygen because NDEs can occur in instances where this is not an issue. On the other hand, he objects that certain explanations do not explain all features of NDEs. For example, drug-induced NDE-like experiences lack elements commonly found in NDEs, such as a life review.

Though he does not make explicit his criteria on adequate explanations, it seems clear from his discussion that van Lommel holds the following requirement on an adequate explanation of NDEs:

Complete Explanation: Any complete explanation of NDEs must account for all aspects of all NDEs.

This requirement is fair enough.²⁷ But van Lommel also seems to accept a stronger requirement on an adequate explanation of NDEs.

[27] It is not clear that adequate explanations must be complete. There are many explanatory contexts in which an explanation of a given phenomenon is acceptable even though it does not explain all aspects of every instance of the phenomenon. The explanation of my high blood pressure may be genetic, whereas the explanation of yours may be your diet. Both

Single Explanation: There must be a single complete explanation of NDEs.²⁸

We do not see the merits of this requirement. Our everyday practice of seeking and providing explanations does not conform to it. We do not require that a heart attack be explained by a single factor. Often the best explanation of a heart attack is a combination of factors (often called ‘risk factors’): genetic predisposition, high cholesterol, high blood pressure, etc. Similarly, we do not suppose that any given allergic reaction must be explained by a single factor. Frequently the best explanation of an allergic reaction involves an exposure to an allergen, a prior disposition to react, as well as hypersensitivity of the immune system possibly due to ongoing infection, etc.

We should reject Single Explanation and allow that a complete explanation of NDEs could be given by a *set* of explanatory factors, none of which is complete on its own. By van Lommel’s own admission, there are explanations of various aspects of certain NDEs in physical terms. For example, he concedes that drug-induced experiences ‘can sometimes result in a period of unconsciousness, but can also in some cases consist of a feeling of being out of body, mostly without veridical perception, and also a perception of sound, light, or flashes of recollections from the past are sometimes mentioned’ (van Lommel, 2013, p. 24). Chemical substances interacting with one’s brain can explain at least some aspects of some NDEs. Once we reject Single Explanation, we should recognize that it would be hasty to conclude, simply because a given physical explanation is not complete, that there is no possible complete physical explanation of NDEs. We should allow for the possibility that a complete explanation may be built up out of various physical factors, none of which suffices on its own to explain the full range of phenomena or is even always explanatorily relevant.

We think that van Lommel should join us in rejecting Single Explanation. First, our reasons for rejecting it stem from consideration of the nature of explanations, and not the project of defending

explanations are adequate, though they do not satisfy *Complete Explanation*. For the sake of argument, however, we will accept van Lommel’s tacit requirement that any scientific explanation of NDEs must be complete in this sense.

[28] By a ‘single’ explanation, we mean an explanation that invokes or refers to a single factor, rather than a conjunction or combination of factors. (Of course, even a single highlighted factor will work against a background of factors.) For another author who seems to invoke Single Explanation in rejecting candidate physical explanations of NDEs, see Paterson (1995, pp. 143–5). See Greyson *et al.* (2009) for discussion of the prospects of physical explanations of NDEs that explicitly considers the possibility of multi-factor explanations.

physicalism. Second, as we shall argue, it is not clear how van Lommel's preferred explanation of NDEs in terms of a non-local, immaterial consciousness is supposed to provide a single complete explanation of NDEs.

B. Immaterial Consciousness?

The first worry we wish to raise about van Lommel's preferred explanation of NDEs is that he appears simply to assume that the non-local consciousness to which he appeals is immaterial. But it is not evident that it must be understood as immaterial. Thus, it is not at all obvious that his positive account is in service of the NDE argument against physicalism.

Van Lommel provides the following positive account of the 'theory of continuity':

a concept in which our endless consciousness with declarative memories finds its origin in, and is stored in, a non-local dimension as wave-fields of information, and the brain only serves as a relay station for parts of these wave-fields of consciousness to be received into or as our waking consciousness. The latter relates to the physical body. These informational fields of our non-local consciousness become available as our waking consciousness only through our functioning brain in the shape of measurable and changing electromagnetic fields. Could our brain be compared to the TV set, which receives electromagnetic waves and transforms them into image and sound? Could it as well be compared to the TV camera, which transforms image and sound into electromagnetic waves? These waves hold the essence of all information, but are only perceivable by our senses through suitable instruments like the camera and TV set. The function of the brain should be compared with a transceiver, a transmitter/receiver, or interface. Thus there are two complementary aspects of consciousness, which cannot be reduced one to the other, and the function of neuronal networks should be regarded as receivers and conveyors, not as retainers of consciousness and memories. (van Lommel, 2013, p. 38)

According to van Lommel, consciousness is analogous to electromagnetic waves and the brain is analogous to a TV set/camera, which can both receive and transmit these waves. The first thing to notice about this analogy is that it is entirely compatible with physicalism. Electromagnetic waves are physical phenomena, measurable by means of scientific instruments.

Nothing van Lommel says in the above quoted paragraph commits him to denying that everything is physical, including consciousness. Yet he goes on to deny it in the next paragraph.

In this concept, consciousness is not rooted in the measurable domain of physics, our manifest world. This also means that the wave aspect of our indestructible consciousness in the non-local space is inherently not measurable by physical means. However, the physical aspect of consciousness, which presumably originates from the wave aspect of our consciousness through collapse of the wave function, can be measured by means of neuroimaging techniques like EEG, fMRI, and PERT scan. The impossibility to objectively measure or prove this non-local aspect of consciousness, which also has been called 'transpersonal', 'enhanced', 'higher', 'divine', or 'cosmic' consciousness, could be compared to gravitational fields, of which only the physical effects throughout the universe can be measured, but the fields themselves are not directly demonstrable. (*Ibid.*)

Initially, one might wonder why the concept of consciousness van Lommel is presenting us with is 'inherently not measurable by physical means', when he has just characterized it as analogous with something that is measurable by physical means — namely, electromagnetic waves. His answer comes in the form of a second analogy. This form of consciousness is analogous, not to electromagnetic waves, but rather to gravity. Its effects can be measured, but it is itself immeasurable.²⁹

We are puzzled by what van Lommel says in these passages. He characterizes the brain, as well as the form of consciousness implicated in NDEs (in opposition to the form of consciousness implicated in normal conscious experiences), by means of two distinct and incompatible analogies. On the one hand, the brain is like a TV set/camera, and normal conscious experiences are like the sights and sounds of electromagnetic waves manipulated by the TV set/camera, whereas the special form of consciousness is like the electromagnetic waves themselves. On the other hand, this special form of consciousness is like gravity, and we are left wondering what, on this second analogy, the brain and normal conscious experiences are supposed to be like. These analogies do not work together. As we have already noted, electromagnetic waves are directly measurable by physical

[29] We are not sure that gravity is best considered immeasurable, as van Lommel claims, and so immaterial. But we grant for the sake of argument that it is. The analogy with gravity, however, raises an issue about the brand of dualism van Lommel is best construed as adopting. Gravity, a force, is perhaps best characterized as a property possessed by physical objects with mass. A dualism that invokes the analogy, according to which consciousness is like gravity, would then be a version of property dualism — the thesis that there are two fundamentally different kinds of properties. However, van Lommel will go on to claim that self-identity is preserved by this consciousness, and this suggests, given certain views about the self, that he is a substance dualist — one who holds that there are two fundamentally different kinds of substances. It would be informative to know what kind of dualism van Lommel thinks is correct.

means, and so are in this way different from gravity. Thus, the two characterizations of the special form of consciousness do not square. In addition, the second analogy simply does not provide a characterization of normal conscious experiences or the brain.³⁰

In the next paragraph, van Lommel goes on to make several further claims: (i) that consciousness is endless, or not confined to the brain; (ii) that consciousness has always existed; (iii) that consciousness will always exist; (iv) that each individual's self-identity is preserved in this endless, infinitely existent consciousness.³¹ But notice: all of these claims are compatible with physicalism! This is extremely perplexing in the context of an argument against physicalism. And it seems perfectly plain that van Lommel considers himself to be arguing against physicalism.³² Thus, it is not only unclear how we are supposed to conceive of consciousness, on van Lommel's view, but also how this conception is supposed to support abandoning physicalism.

C. *The Ghost in the Machine*

The final worry we wish to raise about van Lommel's preferred explanation of NDEs is that, even supposing, contrary to our arguments above, that there is a strong case that physical explanations of consciousness are inadequate, it is still not evident that appealing to the non-physical makes any explanatory progress. At least one familiar puzzle facing the dualist is both applicable in the case of van Lommel's conception of consciousness and relevant to the explanatory task at hand.

Van Lommel (2013, p. 30) gives expression to a deep puzzle when he asks, 'how should "unconscious" matter like our brain "produce"

[30] What is the brain supposed to be like on the second analogy? It must be something that both receives and transmits gravity, transforming it into something like normal conscious experiences. What might play this role? And what is the upshot of the transmission/reception of gravity that is supposed to be like normal conscious experience? We suspect that this second analogy is not filled in because there is no coherent way of doing so.

[31] He also claims: (v) that (i)–(iv) are unavoidable conclusions. This seems clearly false. Only (i) is supported by anything else he says, and, even then, only by the two analogies we have argued are incoherent.

[32] There is a way of interpreting van Lommel's claim that 'the current materialistic view of the relationship between consciousness and the brain as held by most physicians, philosophers, and psychologists is too restricted for a proper understanding of this phenomenon [NDE]', such that it does not commit him to dualism (van Lommel, 2013, p. 7). It might be suggested that he is not providing an argument against physicalism and, instead, seeks to establish merely that a physical explanation of NDE requires that we adopt a conception of consciousness as non-localized in the brain. But the general tenor of his paper and other claims he makes, such as that '[a] purely materialist analysis of a living being cannot reveal the content and nature of our consciousness', tell against a physicalist reading of his position (van Lommel, 2013, p. 37).

consciousness, while the brain is only composed of atoms and molecules in cells with a lot of chemical and electrical processes?' We think he is right to be puzzled about how the brain can give rise to consciousness. But we are not convinced that the way to resolve the puzzle is to posit an immaterial consciousness (of any sort).³³ The relationship between an immaterial consciousness and a material brain is just as much of a puzzle as the one van Lommel identifies. How could unconscious matter like our brain interact with immaterial consciousness? Gilbert Ryle (1949) dubs this form of dualism 'the dogma of the Ghost in the Machine'. We might put the puzzle this way: how is the ghost supposed to move the machine? And how does the machine make contact with the ghost?

The physicalist does not face this puzzle. Consider van Lommel's first analogy, according to which our brain is like a certain kind of machine, namely, a TV set/camera, and our consciousness like electromagnetic waves. There is no puzzle about how the TV set receives electromagnetic waves or the camera transmits them. We can describe these phenomena in great detail and make sense of them given our knowledge, in physical terms, of the way things work. In general, there is no puzzle about how one type of material can interact with another. If the mind is physical, just like the body, then there is no ghost to wonder about how it interacts with the machine. But, as we have already remarked, there is a puzzle about how something immeasurable, like gravity, which, according to van Lommel's second analogy, is like consciousness, is supposed to be received and transmitted by something material, like our brain. It was partly in virtue of this puzzle that we claimed van Lommel's second analogy breaks down. For his view of things to make sense, the dualist must have some answer to this puzzle. This is not to claim that there is no possibility of supplying an answer to the puzzle, just that there *is* a puzzle here. And we do not see that van Lommel provides an answer to it.

This leads to our final point: there is no clear explanatory progress made by appealing to the non-physical in explaining NDEs. How exactly does positing an immaterial, non-local consciousness explain all of the features of NDEs? One might think that it explains the OBE component of NDEs, as it allows for a consciousness that may be located outside the subject's physical body. But it does not explain how a conscious person, whose consciousness is once again located in

[33] For an interesting alternative to the choice between accepting either physicalism or dualism, see John Searle's claim that we should do away with the physicalism/dualism dichotomy and consider consciousness to be a biological process, like digestion, in, for example, his (1997, pp. 162–3).

her physical body, ‘gains access to’ this non-physical consciousness and thereby acquires the relevant information about the physical world. What is the mechanism by which the non-physical information is transferred to the physical body, such that it can be reported via sounds out of one’s mouth? And how is it that the ‘life-review’ component of an NDE is explained by invoking non-physical consciousness? Again: how do we somehow ‘gain access to’ or ‘tap into’ the ‘highlight reel’, given that it is not physically stored in our brains? How does positing an immaterial consciousness help here? These are special instances of the daunting general problem of understanding the purported interaction of the physical and non-physical realms.

It seems to us that giving up on physicalism for the reason that no existing physical explanation of the relevant phenomena is completely adequate is hasty; and it is important to recognize further that opting for dualism and positing an immaterial consciousness brings with it a whole host of new problems — arguably at least as bad as the problems facing physicalism.

4. Conclusion

Our critique of the two versions of the NDE argument against physicalism consists of two main claims. First, we have argued that it has not been established that physicalism is unable to explain NDEs, or even that there is good reason to increase our confidence in the need for non-physical explanations of NDEs. Second, we have argued that appeal to a conception of consciousness as non-physical brings along daunting problems of its own. For all we have said here, physicalism may be subject to insurmountable difficulties (especially as regards the subjectivity of experience). We have, however, been at pains to show that the list of problems facing physicalism does not include the NDE argument against it (in either its weaker or stronger form).

We would like to stress that our critique of the NDE argument against physicalism should not be taken as a wholesale rejection of the significance of NDEs. In particular, we do not challenge the claims that there are people who really do have NDEs and that these experiences are often profoundly life-altering for those who have them. In fact, van Lommel himself has done important work identifying these profound effects of NDEs (van Lommel, 2010; van Lommel *et al.*, 2001). Our critique of his argument against physicalism does not, for example, call into question his finding that people who have experienced NDEs often show, among other things, increased belief in an afterlife, decreased fear of death, increased interest in the meaning of

life, and increased acceptance of others. We simply wish to establish that the reality of these experiences and their effects on those who have them do not clearly tell against physicalism as a view about the relation between the mind and the body.

One might worry, however, that taking some of the points we have made here seriously will have a stunting effect on the significance NDEs may have for some of those who experience them. If a subject of an NDE comes to believe, for instance, that it is a genuinely open question whether her experience can be explained by appeal to a mixture of factors, such as lack of oxygen and the natural release in her brain of substances found in certain hallucinogens, might this inhibit her coming to have a stronger belief in the afterlife or greater interest in the meaning of life?

It seems to us a matter for empirical investigation whether the acceptance of the possibility of certain physical explanations of one's NDE has an effect on the life changes typically associated with NDEs. We do not see any *a priori* reason to think that it would. Indeed, for some individuals a belief in non-physical explanations may be strengthened by consideration of candidate physical explanations.³⁴ One's belief that one's NDE is best explained by appeal to a conception of consciousness as non-local and immaterial will be stronger and more articulate if one has been presented with and given serious consideration to the alternatives. Part of this process involves seriously considering, in the most charitable manner, the ways in which physicalism can surmount the difficulties presented by the task of explaining NDEs.

Of course, in the end it will be up to each individual who has an NDE to interpret its meaning as he or she sees fit. We think that consideration of a range of potential explanations of the phenomena will empower these individuals to conceptualize their NDEs in ways that are more fully informed. They still may choose to think of them as explained by an immaterial consciousness; but if they do this, it will be with their eyes wide open.

It is worth pointing out that we have not taken a stance on the correct standard for belief. Our claim is not that one should accept a physical explanation of NDEs, or else remain agnostic about how they are to be explained. We have left it open whether one should aim to believe only verified truths, or whether it is appropriate to believe

[34] For the general point that we should give competing opinions consideration, on the grounds that failure to do so threatens the very cogency and strength of the opinions we do hold, see Mill (1962, pp. 180–1).

claims on the basis of pragmatic considerations, as well as evidence.³⁵ Given the latter standard, our claim that it is an open question whether there is an adequate physical explanation of NDEs need not forestall belief in an explanation that appeals to the non-physical.

Finally, we should emphasize that the noteworthy changes in attitudes of individuals who have had NDEs should not be invoked to stifle legitimate enquiry into the nature and proper interpretation of such experiences. After all, many people have profound changes in their attitudes and behaviour after religious conversions. But it would be manifestly inappropriate to invoke these phenomena to stifle legitimate enquiry into the nature and justification of religious beliefs. In the end, we stand for open enquiry, on all sides.

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[35] This distinction between two aims of belief is central to William James's discussion in his (1921). (We cannot help but include mention that van Lommel himself appeals to James's views on this matter, though he takes them out of context and cites the wrong source. Van Lommel (2013, p. 40) cites James (1898), but James's words are really from p. 376 of his (2008). Moreover, van Lommel presents the quotation as if it supports the view that the brain transmits, as opposed to produces, consciousness. While James does discuss this view in his (1898), he never claims that it is correct. Rather, he argues that it is consistent with the mechanistic view central to the sciences. The quotation, taken in context, is in support of something more like the point discussed above, from James (1921). This point is distinct from the issue of the relation between the mind and the body.)

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