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Non-eliminative Reductionism: The Basis of a Science of Conscious Experience?

Dennis Nicholson

1. Introduction

It may be that qualia[i] are neither a uniquely hard problem that physicalism can only resolve by treating them as fundamental properties as Chalmers (1995, 1996, 2003) has suggested nor so ephemeral that they will disappear entirely once Science has solved all of the easy problems associated with the brain as Dennett has proposed (1988, 1991). It could be that qualia are valid and entirely explainable aspects of a reductionist universe, wholly ontologically reducible to physical states also perceived as brain states, but that they nevertheless entail irreducible experiential perspectival knowledge that is a necessary and justifiable additional element of a complete scientific account of the physical states in question.

In this paper, I outline a particular view of the relationship of qualia to the physical world and argue that, if the position presented is true—and it is, I contend, a coherent and credible position that could be true—two things follow. First, there is no conflict with reductionist physicalism—a quale is a physical state like any other, able to be studied and accounted for using the standard scientific approach applied to all physical things and presenting problems no harder than any other. Second, the unique “like something” qualities of experience identified by Chalmers (1995, pp. 200–202) with the hard problem of consciousness can be encompassed within our scientific view of the physical world without the need to regard them as fundamental properties alongside mass, charge, and space-time as he proposes. Instead, they can be encompassed as *required and justifiable elements* of a physical account of the brain, an account that then offers a possible basis for a scientific account of human experience compatible with reductionist physicalism. This does not necessarily mean that the position is a true account of the nature of qualia, but it does suggest that it is worth further consideration as such—not least because it shows that there are circumstances in which qualia and physicalism can co-exist without difficulty.

For reasons that will become evident under clarifications 3 and 4 below, a descriptive label for the position might be non-eliminative reductionism.

2. Non-Eliminative Reductionism Described and Clarified.

The Position Described

The position in a nutshell is this. Some physical states in the human organism, experienced by an external observer as certain types of brain state[ii], are also experienced as qualia by an internal observer, with the internal observer experiencing them directly and internally as part of a wider, directly known, experiential self, and the external observer experiencing them indirectly from the outside through various sensory and (often) instrument-mediated filters. Neither observer’s perspective represents the reality of the physical state ‘in the raw’—each is the reality as known as distinct from the reality as such (cf. Hodgson, 2005, pp. 85–87). However, whilst the external perspective is physically distinct from the physical state that is both quale and brain state (in the simplest case because it is an experience occurring in another, physically separate, human who is the external observer), the internal perspective that gives us the quale ‘just is’ that physical state.

The perspective is ontologically reducible to the physical state, an entirely physical thing, wholly subsumed within the physical state and materially co-extensive with it (think of a glass globe which may be orange, either because it is seen through a separate orange filter, or because an orange additive permeates the glass itself). The distinction made between the perspective and the physical state is made on epistemological grounds—a recognition that, in the position as described, what the perspective shows us is not the physical state ‘in the raw’, but a *view* of it—one of two possible views (and a limited one at that, given the greater detail available via external study). Ontologically, the perspective *is* the physical state—to the extent that there is no aspect of the internal perspective that does not have an externally observable correlate in the brain state and that is not wholly subsumed within the element of the physical state that underlies that correlate. In particular, the quale experience is seen as having two distinguishable sub-elements: ‘baseline experience’ (the essence of the inner perspective that is common to all qualia) and a ‘base feel’ (the element that distinguishes one quale from another—the orange flash element of the orange flash or the sweetness element of the sweet taste), and each of these aspects of the whole quale experience is held to have an external correlate in the brain state and to be wholly subsumed within the element of the physical state that underlies that correlate.

A key consequence of this reducibility is that these and any other aspects of the internal perspective can be studied and explained using the standard scientific approach applied to all physical things. If the inner perspective is wholly ontologically reducible to the physical state, any and every problem the inner perspective raises is a problem subsumed within the physical state and can be studied and solved by an external observer examining it via its external correlate or correlates but studying and testing what is always the real focus of empirical scientific experimentation and investigation—the *actual* problem (rather than a perspective on it) in the physical state itself. Ontological reducibility means that any aspect of the internal perspective and its associated external correlate are the same scientific problem in different perspectival guises[iii] and have, perforce, the same solution—a solution that can be found by examining the physical state via the external correlate using the standard scientific approach applied to all physical things and producing a single account of what is, in this perspective, a single phenomenon. An account based on external observation alone would entail both one guise of the problem itself (the external or brain state guise) and a full explanation of the phenomenon, regardless of guise—the internal guise of the phenomenon that is both quale and brain state would be explained by such an account, all that would be missing from it would be the internal guise itself.

We shall see later in the paper (*Clarification 4*) that an account that omits the inner guise entirely in this way can be criticised as incomplete and misleading because it thereby fails as an accurate reflection of the nature of the *phenomenon* it explains. However, this does not alter the key point that, in the position described, where the inner perspective is wholly subsumed in the physical state underlying the brain state, an account based on standard scientific methods and external observation alone would provide a complete, accurate, and, as I shall show later, wholly satisfactory, *explanation* of that phenomenon in both its external and its internal guises.

Clarification 1: An Experiential Rather than a Real Gap

Qualia can often seem so different to states in the ‘soggy grey matter’ of the brain (McGinn, 1991), that a claim that a quale is a brain state experienced differently can seem difficult to credit, so a clarification of what is claimed in this respect may be helpful. Imagine, as a first example, a

visual quale such as an orange flash, and assume that the corresponding physical state is some kind of electrical discharge. The claim is that the electric discharge is an orange flash when experienced directly by the organism in which it occurs, but a brain state that might be seen as a grey-white or red or purple discharge when known by an external observer of that organism observing the event on a VDU linked up to some kind of brain monitoring equipment and its sensory impacts—which is to say, through an entirely different perspectival route with different experiential filters. In this example, the gap appears relatively small (indeed, the orange flash might easily appear as an *orange* discharge on the VDU). It would appear greater if the example used a sweet taste rather than an orange flash, or (to take a complex example) a biochemical state whose nature was influenced by its context within a neural network^[iv] rather than an electrical discharge. An orange flash seems more like a green or orange discharge on a VDU than a sweet taste does, because of the difference in sensory modes, and there are a variety of sensory, conceptual, and instrument-based reasons why it is easier to imagine an orange flash as an electric discharge than a biochemical state. The extent of the gap makes no substantial difference to the position, however, since it is held to be an apparent gap, or one induced via perspectival and other experiential filters, rather than a real one. Both sets of observations—internal and external—are experiential in nature^[v], with external observations being, by definition, known from the outside in a fashion mediated through the senses and instruments used, and internal observations taken to be direct and non-mediated (the inner perspective ‘just is’ the physical state). This means that, in all but a few exceptional cases (like the orange VDU discharge), some level of apparent gap is inevitable—it will always appear that the quale and the brain state cannot be the same thing because they will always ‘seem’ different because they are experienced differently. In the position described, a quale and a corresponding brain state are simply two different experiential perspectives on a single physical event, a single phenomenon requiring a single scientific account obtainable through external study, no matter how different the experiential perspectives make them seem.

Clarification 2: No Transformation problem

The position assumes that there is no need for such an account to explain how something with the perceived characteristics of a brain state (soggy grey matter and so on) ‘gives rise to’ or turns into something with the apparently very different characteristics of a quale (sweetness and orangeness and the like). Since the inner perspective that gives us experienced blue *is* the physical state underlying the corresponding brain state, the brain state *is* experienced blueness as experienced by an external observer—experienced blueness as the external observer knows it, or blueness in another guise. The external or brain state perspective on experienced blueness does not somehow turn into experienced blueness (cf. § 6 of Papineau 1997 on “Identities Need No Explanation” and Tye 1999), they are already one and the same thing experienced differently. The same holds for sub-elements of qualia like ‘baseline experience’ and ‘base feels’ (blueness or dryness or softness). Each is held to have an external correlate that represents the same scientific problem in a different experiential guise and to be explainable through a scientific account of that correlate. We need not explain how one turns into the other and back again because this does not happen. They already are each other and simply seem like different things because they are experienced from different perspectives—perceived through different perspectival and experiential routes. The only circumstance in which the external correlate of sweetness (say) turns into the inner experience of sweetness is where an observer of the external correlate of a sweet taste changes his

perspective on the type of event observed by eating some sugar and experiencing it differently himself. The external correlate of sweetness *is* sweetness as it is known by the external observer. They are one and the same thing; they don't change into or give rise to one another. Undoubtedly, the fact that there *is* an inner experience of sweetness (and of similar experiences) shows that there is something special about the physical state in question, but the ontological reducibility of the inner perspective to the physical state itself means that this something special is reflected in what is observed externally and can be explained by normal scientific means—base feels such as redness or sweetness are accounted for once the associated external correlates are accounted for, and the same is true of baseline experience (a point addressed more fully at the end of section 3 below—under *Explanatory Power*).

Clarification 3: Additional Perspectival Knowledge Compatible with the Reducibility Claim

The position recognises that the internal observer has access to knowledge not available to a purely external observer—knowledge of how the physical state that is both quale and brain state 'seems' when experienced directly as a quale. However, its source is taken to be perspectival rather than ontological. As such, it does not entail either an additional element of the physical world or an additional problem that needs to be addressed, and so does not contradict the claim of ontological reducibility. The physical state that subsumes the inner perspective—and, perforce, any information content it entails—is held to be wholly accessible to an external observer. The position taken is that there is no aspect of it—including the inner guise of the internal observer—that cannot be known in different terms via the external perspective. But it is this knowing it in different terms that is the source of the internal observer's additional knowledge. Each observer knows the same physical state and the same information content in a different guise. The indirect guise—because it is indirect, or, from the outside—cannot encompass the direct guise *as* the direct guise. The essence of the direct guise is lost because, although the same thing—physical state, information content *and* direct guise—is wholly known by the external observer, the mode of knowing it is external and indirect and cannot, by its very nature, encompass the direct mode of knowing *as* the direct mode of knowing. To put this in other terms, the experiential knowledge content of the direct mode of knowing is epistemically irreducible—which is to say, only expressible without loss in its original form[vi]. It cannot be encompassed within the indirect mode of knowing the physical state that it is ontologically reducible to. The external observer knows everything—physical state, information content *and* direct guise (as known indirectly)—but not the direct guise *as* the direct guise. Its essence is epistemically irreducible to the indirect way of knowing[vii], but since the reason is perspectival, there are no associated ontological implications.

Clarification 4: Inner Guise Knowledge Essential to a Complete Scientific Account

This epistemically irreducible knowledge content is trivial in nature, encompassing nothing more than experiential knowledge of how physical states that are both quale and brain state 'seem' to an internal observer (what orange or sweet or sharp experiences are like)—but a Scientific account of such physical states is seen as incomplete and misleading if it does not encompass this epistemically irreducible knowledge content *as itself* and map it to its external counterparts. The logic is simple. If the view of the nature of qualia presented here is correct, then, as indicated earlier, a scientific account of sweetness based on external observation alone would entail both one guise of the problem itself (the external or brain state guise) and a full explanation of the phenomenon, regardless of guise. The internal guise of the phenomenon that is both the sweetness

quale and the sweetness brain state would be explained by such an account, all that would be missing from it would be the internal guise itself (i.e. sweetness as experienced—how the sweetness brain state ‘seems’ to the internal observer). It would entail a complete explanation of the phenomenon in verbal, or, perhaps, mathematical, and diagrammatic terms, but an incomplete and misleading view of the nature of the phenomenon explained and would, in consequence, be incomplete and misleading as a scientific account—not in respect of its *explanation* of the phenomenon but in respect of its representation of the *phenomenon explained*. It would be incomplete because it would fail to recognise and encompass either the existence or the nature of the inner perspective it was explaining (of sweetness as experienced, which is, remember, epistemically irreducible in the sense that it cannot be known as itself via the indirect or external mode of knowing), and misleading because leaving out the inner perspective in this way would give the impression that it did not exist (that what it was explaining did not encompass such inner perspectives but only their external correlates). The inner experience of the sweetness quality that is the internal guise of its associated external correlate in the brain state is accounted for and explained once the external correlate is accounted for and explained. But if we fail to recognise that the inner perspective is part of what we have explained by including the experience as part of our scientific account and mapping it to its external correlate then the account is incomplete because it does not fully encompass the nature of what has been explained, and misleading because it gives the impression that all there is to the brain state that is also a quale is our external experience of the state. Key—one might almost say, signature—characteristics of the phenomenon would be omitted and the impression given that they had not been part of what was explained and indeed did not exist at all. Only if we encompass our internal experience and map it to the external correlate that is the basis of our explanation can we claim that the account is a complete and accurate reflection of the phenomenon in question[viii] as well as a complete and accurate explanation of it—otherwise, what we know as sweetness seems to be nothing but a brain state.

3. The Basis of a Defensible, Fully Explanatory, Scientific Account of Experience

The Inclusion of Experiential Physical Knowledge as Scientifically Defensible and Innocuous

Assuming there is no difficulty in respect of the scientific verification of the occurrence and description of qualia—a point dealt with below in Section 5—adding this experiential knowledge to the standard scientific account is arguably entirely defensible if qualia are as described in the position presented. If the inner perspective is entirely subsumed within the physical state ontologically speaking, then what we are adding is experiential physical *knowledge*—experiential knowledge of something physical that is itself physical without which our account is incomplete and misleading in respect of the description of the phenomenon explained. Its inclusion in a complete account is both necessary and justifiable from a scientific perspective because it is (experiential) physical knowledge not otherwise included and the account will be incomplete and misleading without it.

It is also arguably entirely innocuous (cf Conee, 1994; Deutsch, 1999). First, because the knowledge added is simply noted as an additional perspective on the phenomenon being accounted for— as a different perspectival ‘label’ for it—not added as an additional element of the view of the related element of the universe that is used to account for it and its nature. Second, because it is, in any case, non-verbal and cannot add to or contradict the various assertions—verbal, mathematical or diagrammatic propositions—entailed in the external observer’s

standard account in any event. Third, because the experiential knowledge in question is held to be physically subsumed within, and fully explained by, the physical state that is the focus of these assertions—it adds nothing new to the ontology of the scientific universe and introduces no additional problem not encompassed in the external view.

In summary, what we are adding is trivial in knowledge content terms and does no harm to the standard scientific position, but—given that the nature of qualia is as suggested here—its inclusion is nonetheless necessary and justifiable on the grounds that, without it, our account would be incomplete and misleading, giving the impression that the physical states that are qualia are only as they appear to an external observer.

A Basis for a Reductionist Scientific Account of Experience

In this view, with the experiential knowledge included and mapped, we have the basis of a scientific account of human experience entirely compatible with a reductionist position—and can have an entirely physical account of the human organism which both encompasses experience in a defensible fashion and fully explains its characteristics. A full scientific account of why the base feel of a quale is experienced blueness, say, as opposed to experienced redness, or of softness, or sweetness, will consist of nothing more than a full scientific external observer's account of how the physical state that 'just is' the experienced blueness differs from physical states that are different kinds of base feel and from physical states generally, plus a mapping of that account to the blue experience itself. Essentially, it will be nothing more than a scientific account of the external correlate of experienced blueness—experienced blueness as it is known via the different experiential and perspectival route utilised by an external observer—mapped to our knowledge of how the same physical state that underlies the external correlate and subsumes the blue experience seems to an internal observer. Similarly, a scientific account of why a physical state exhibits baseline experience as opposed to being a non-conscious or non-experiential state will consist of nothing more than a full scientific external observer's account of how the physical state that 'just is' baseline experience differs from other organismic physical states such as non-conscious brain states and from physical states generally, plus a mapping of that account to baseline experience as experienced..

In each case, the physical state in question is the reality 'in the raw' that underpins or 'just is' both forms of blueness or of baseline experience. Once we have accounted for it being experienced blue or baseline experience via the external correlate, we have accounted for it being experienced blue or baseline experience period. All that is needed in addition is a recognition of the existence of an internal perspective and a noting of our knowledge of what it is like to experience the blueness or the baseline experience directly as well as indirectly. For reasons already given, it is necessary to add this experiential knowledge to the standard scientific account, but its ontological reducibility to the physical state underlying the external correlate means, both that the position is entirely compatible with reductionism, and that there is nothing left to explain. To explain why the physical state that underlies the external correlate of experiential blueness is different from the physical state that underlies the external correlate of experiential redness is to explain why the physical state that 'just is' experienced blueness is experienced blueness and not experienced redness. To explain why the physical state that underlies the external correlate of baseline experience is different from the physical states that underlie the external correlates of non-conscious organismic or non-organismic states is to explain why the physical state that 'just is' baseline experience is baseline experience and not something non-experiential. In the non-eliminative reductionist viewpoint, experience and

correlate are simply the same entirely physical problem in different guises—to account for one is to account for both.

Explanatory Power

It is, moreover, entirely reasonable to suggest that the accounts in question will fully explain these aspects of experience in an wholly satisfactory fashion. This is easiest to see with base feels, where we are dealing with ‘why like this as opposed to that’ questions. An account that gives a satisfactory explanation of why the external counterpart of red is characteristic of one physical state and the external counterpart of blue is characteristic of another in terms of the more basic subordinate elements of the states and their relevant environmental contexts should be equally satisfactory as an explanation of why actual experienced red is characteristic of one state and actual experienced blue of another. We are simply exchanging one experiential label for another, with each having the same physical state as referent. Experienced blue will be like it is experientially—as opposed to being like experienced red or a tinkling sound—because the physical element that underlies it and its external counterpart differs in discoverable physical ways from that underlying experienced red or a tinkling sound.

The position with baseline experience is similar, if less straightforward. Despite initial appearances, a full answer to the question ‘What are the physical processes and properties that underlie baseline experience as viewed through its external correlates—how do they differ from processes and properties observed in other relevant elements of the physical universe and how do these differences explain its functionality and its characteristics?’ is all that we require to fully explain baseline experience. This is most evident in respect of what might be called the functionality question—how do parts of the organism work to give it the ability to be cognisant of events within itself in a way that goes beyond simply having access to the information in some non-conscious sense? The question of how cognisance at something more than a non-conscious level works is clearly a functional question and a functional explanation based on differences in the physical processes and properties that underlie baseline experience will suffice. What is somewhat less evident, but no less true, is that the same also holds for the “why like anything” question. Why the startling difference between non-conscious events in the brain and elsewhere and experiential consciousness—why does baseline experience exist at all (cf. Chalmers, 1996, pp. 4–5).

On first consideration, this seems unlikely. It is difficult to see how explaining the functioning and characteristics of baseline experience via its external correlates will satisfactorily explain why the physical state underlying these external correlates should be ‘like something’. Indeed, Chalmers asserts that the kind of standard physical account that answers this type of question leaves the ‘why like anything’ question unanswered and experience itself unexplained (see, e.g., 2003, pp. 104–7). In the non-eliminative reductionist perspective, however, he is wrong. Here, the “why like anything” perspective has no substance over and above the physical state that underlies its external counterpart. It *just is* that physical state, which means that the external counterpart is simply the “why like anything” perspective as it is known to an external observer—the external observer’s “label” for both forms of the “why like anything” experience. In the non-eliminative reductionist position, the inner “why like anything” perspective is not an additional problem over and above that addressed through its external counterpart, simply a different perspective on that problem—and since the perspective is subsumed in the physical state itself, it too is explained as a physical problem when its external counterpart is explained.

If this seems difficult to accept, consider that an ability to be cognisant of events in a way that goes beyond simply having access to the information in some non-conscious sense *must* be 'like something' in some sense. Anything that was not 'like something' would, perforce, be non-conscious and non-experiential[ix]—which means that once we have detailed how the different physical processes and properties that underlie baseline experience explain its externally observed functionality and characteristics we *will* have provided a satisfactory answer to the question 'why does experience exist at all?'. By explaining how the phenomenon as reflected in the external correlates comes about and works, we will have explained the workings of a mechanism that must in some sense be experiential—how the external characteristics work to give rise to the external correlates of something that must be 'like something' in some sense to an internal observer. With baseline experience, we may feel the need to take the matter further and ask why the "why like anything" experience is so startlingly different from what we find in physical reality as a whole, but even this makes no substantial difference. If the "why like anything" experience is subsumed in the physical state, then so is the startling difference—it will be reflected in the external counterpart and dealt with by the external observer's explanation of that external counterpart.

We will not, of course, have explained how baseline experience as experienced internally arises from the soggy grey matter of the brain, but this is as expected, and is not a problem when what we are dealing with is simply two different experiential perspectives on the same thing. In this perspective, there is no transformation problem—we need not and cannot explain how the processes and characteristics of states and events in what seems to an external observer like the soggy grey matter of the brain 'give rise to' baseline experience as experienced by an internal observer (although, if we ever develop a robot consciousness mechanism and are able to transplant it to people with damaged consciousness mechanisms but working memory, it might be possible for such a person to have an external correlates based explanation of why human baseline experience seems like it does seem and not like the robot consciousness seems—assuming, of course, that they are in fact different experiences).

All that an account of the various base feels and of baseline experience based on external correlates lacks is the additional experiential knowledge of what the physical states in question are like for an internal observer, but this is easily resolved by mapping that experiential knowledge to the external correlates in question. Since, in the non-eliminative reductionist perspective, this additional knowledge is entirely ontologically reducible to the associated physical state, the end result is a scientific account of human experience entirely compatible with a reductionist position—an entirely physical account which both encompasses experience in a defensible fashion and fully explains its characteristics.

4. Experiences as a Valid and Entirely Explicable Part of a Reductionist Position

The basis of the two claims made for the position in the introductory section should now be clear. The first follows if the inner perspective that gives us the quale is ontologically irreducible to the extent and in the senses proposed above. Reductionist physicalism is true, and a quale is a physical state like any other, able to be studied and accounted for using the standard scientific approach applied to all physical things and presenting problems no harder than any other. The second follows if, in addition, qualia also entail epistemically irreducible perspectival experiential knowledge content that must be added as experiential knowledge to a scientific account if the account is not to be incomplete and misleading. The unique "like something" qualities of experience identified by Chalmers with the hard problem of consciousness may be acceptably

encompassed within the scientific world view as required and justifiable elements of that view without conflict with the reductionist position and without the need to regard them as fundamental properties alongside mass, charge, and space-time –and the result offers a possible basis for a scientific account of experience.

If the non-eliminative reductionist position outlined in this paper is correct, qualia are neither so ephemeral that they will disappear entirely once Science has solved all of the easy problems associated with the brain as Dennett has proposed, nor a uniquely hard problem as Chalmers has suggested—and we need not talk about new fundamental properties unless and until normal scientific study of brain states by external observation shows this to be necessary[x].

5. Conclusion and Concluding remarks

Conclusion

Clearly, none of what I have presented above shows that the particular view of the nature of qualia set out in this paper is necessarily true, but it does, I hope, show that it is worth further consideration as a possibly accurate view of the relationship of qualia to the physical world. On the face of it, it is a coherent view of the nature of qualia that might be true, and worth some level of consideration on that basis. However, it also has some particular positive features. First, if it is true, qualia present no particular problem for reductionist physicalism—they are entirely physical and can be studied and explained using the normal scientific approach used for all other things in the universe and present no problem any harder than any other faced by scientists. Second, reductionist physicalism presents no particular problem for qualia—they can be encompassed within an entirely physicalist world view without any concomitant need, either to reduce them into to non-existence, or to treat them as new fundamental properties. Taken together, these points mean it is a view of the nature of qualia that shows how qualia and physicalism can co-exist without difficulty[xi], which, given the ongoing success of physicalism in explaining the rest of the universe as we know it, has to be taken as a point in favour of the non-eliminative reductionist position.

It is also, perhaps, worth noting that it is highly probable that only a position where the inner perspective is both ontologically reducible and epistemically irreducible for solely perspectival reasons (so that there is no conflict with the ontological claim) will permit qualia and physicalism to co-exist in these ways, so it could be suggested that non-eliminative reductionism must be true if physicalism is true.

Concluding Remarks 1: Verifying the Occurrence and Description of Qualia

Science, of course, would not be expected to simply assume that qualia are as suggested here. It would require verifiable evidence of a one to one relationship between baseline experience or a ‘base feel’ like experienced blueness and the proposed external correlates before it would regard the inclusion of such inner experiences in a scientific account as defensible. A possible objection to the claim that the inclusion of such experiences is defensible might be raised by showing that it is impossible to test and obtain unambiguous verification of such a one to one relationship. Specific issues likely to be raised in this regard include: claims that reports of inner experiences are not verifiable in the way that reports of external events are, and that, even if they were, we

could not verify that one person's experience of blueness was the same as another's. Dealing with these in any detail would require a longer paper. However, it is possible to show briefly that they are not necessarily the problems they are sometimes thought to be.

The fact that reports of inner experiences can often be unverifiable is, I believe, misleading. It is possible, in my view, to so arrange experimental conditions that the circumstances with regard to their verifiability are not significantly different from those of observational reports on events in the external world. There are two aspects to this—the control of the conditions in which observations are made and the nature of the observations themselves. To begin with the former: in external world experiments, the aim would be to ensure that experimental conditions are controlled, repeatable by others at a different time, and, ideally observable by more than one person at any given time. This is probably more difficult where we are studying the effects of (say) direct brain stimulation on experiences than it is in external world experiments, but surely not impossible. We need only think of several humans all in sensory deprivation tanks and all having the same part of their brains electrically stimulated by the same piece of equipment in the same way simultaneously to see that some significant degree of control, repeatability, and simultaneous common observation of the event in question is possible.

Now consider the nature of the observations made in this circumstance as compared with those in an external world observation—a circumstance where all observers reported seeing a blue flash when their brains were subjected to some particular localised stimulation as compared with one where a number of observers all reported litmus paper turning blue when dipped in a particular liquid. We tend to assume that the external world observation reports are somehow more reliable because we assume the observers are all individually confirming each other's reports and descriptions of a single event, whereas the sensory deprivation tank observers are reporting private experiences only accessible to themselves. But this is not true. In reality, the external world observers are reporting the effect of the external event on their own experiences—there is no real difference between the two. If one set of observations is reliable in respect of occurrence and description, so, presumably, is the other.

Concluding Remarks 2: Intra and Inter Species Variations of Qualia and their Correlates

I have assumed in the body of the paper that only one set of external correlates are associated with experiencing a 'blue' or 'red' or 'sweet' or 'sharp' external world object (and, by extension, mental images of such). In consequence, I have also assumed the quale I experience and the quale you (or a monkey or an alien) experience in circumstances where these correlates occur is essentially the same experience—that my blue (or red or sweet or sharp) is experientially the same as yours (or a monkey's, or an alien's). In circumstances where the external correlates are the same, it is reasonable to take this view I think—indeed, it would arguably be perverse from a physicalist viewpoint to take any other view.

One circumstance in which we would be entitled to take this view (that there was only one experienced blue, say—or one set of shades of blue) is if it should turn out that the specific brain state correlated with experiencing a blue physical world object is the same (within some reasonable and specifiable parameters) for various members of the same species, despite differences in the brains and history of the individuals concerned. Another is where, despite differences of general biological and physiological context, the evidence shows that the specific brain state that is correlated with experiencing, say, a blue physical world object is (within some reasonable and specifiable parameters) identical across individuals and species (this seems to

me to be entirely possible, in the same way that it is possible that a spark or an electrical discharge might occur in wholly different circumstances yet be essentially the same physically in a variety of such cases).

It is, however, important not to ignore the alternative circumstance—which might well occur between species, but could also potentially occur within a species, including our own. It may turn out to be true that the external correlates of experiencing a blue or yellow or sweet or sharp external world object (or, by extension, mental images of such) are significantly different between one species and another, or even between the individuals of one species—that they are multiply realisable[xii]. In such an event, the reasonable assumption to make from a physicalist viewpoint would be that there were also related differences in the associated experiences—that my experience of ‘blue’ was *not* identical to yours or a monkey’s or an alien’s.

Even if this latter scenario should turn out to be true, however, it does not affect the basic points put in this paper. It will remain possible that the view of qualia proposed here is true—that a quale is entirely reducible to a physical state but entails irreducible experiential knowledge that is a required and justified part of a full scientific account—and, hence, that all of the points made above still stand. The resulting scientific account of a physical state that is both quale and brain state may be a little more complicated—in the worst case indicating both that there are a range of physical states associated with the experience we all call blue and that there is no certainty as to whether what we each call blue is the same experience for all—but it will still be the case (given that the position is true) that an account that fails to indicate the fact of the inner perspective and something of its nature will be incomplete and misleading as a full scientific account of the physical states in question.

Concluding Remarks 3: The Conceivability and Knowledge Arguments

In his 2003 paper on the topic Chalmers (2003, 104–7) offers what he calls *The Explanatory Argument* (§ 5.3.1 and the preceding paragraph) in support of his claim that experiential consciousness cannot be reducibly physical, and so, can only be encompassed in our world view by adding qualia as additional fundamental properties of the physical world alongside mass, charge, and space–time. This—an argument that physical accounts explain only structure and function, and do not account for experience—was countered in Section 3 above (under *Explanatory Power*), where it was shown that Chalmers is wrong if the non-eliminative reductionist position is true. Physical accounts do explain experience in this position—by explaining the physical states that subsume/*just are* experience and mapping in experience itself to the explanation. Chalmers also offers two other arguments in support of his position, however—*The Conceivability Argument* (5.3.2), and *The Knowledge Argument* (5.3.3) and it is worth closing with a look at how the non-eliminative reductionist position deals with these, and with a related argument that originates with Jackson[xiii].

The conceivability argument is the argument from the conceivability of zombies. In essence, Chalmers argues (following Kripke, 1980) that, since we can conceive of a possible world in which zombies, physically identical to us but lacking inner experiences, exist, conscious experience must be something over and above our physical make-up—it is not reducible to the physical world as we know it. The counter to this is that, if the non-eliminative reductionist position is true, then, whilst it may appear that zombies are possible, because we can observe either an inner experience or a corresponding brain state in isolation, this is illusory. The two

necessarily occur together[xiv]—like water and H₂O (cf Chalmers, 1996, pp. 146–9). We would always—technical barriers aside—be able to make both observations if we attempted it. There is a possible world in which zombies are not conceivable—and so, a possible world in which reductionist physicalism is true. They are not conceivable if the non-eliminative reductionist position is true, because then the inner and outer perspectives are inextricably linked to the same physical state. It seems that we can conceive of this physical state occurring without entailing the inner perspective, but we are mistaken to think so. We are actually conceiving of something that only seems like that physical state to an external observer, but that is, in fact, another quite different (zombie) state, a mistake that is possible because, when acting as purely external observers, we can observe the outer perspective without also observing its inner correlate[xv].

Chalmers' *knowledge argument* is the same basic position argued by Jackson (1982, 1986). In essence, it is that, since the facts about experience as experienced are not deducible from the physical facts (about structure and function) experience is not reducible to the physical world as we know it. One response to this might be to point out that we cannot deduce what the sea will feel like from knowledge of its structure and function unless we first have an experiential reference point—that we would only be able to imagine what the sea felt like from its structure and function if we could deduce it from knowing, say, that it was more flexible than rock and more structured than dust and we knew what each of those felt like—and then point out that the same holds for experience if the non-eliminative reductionist position is true. If, for example, we had access to some sensory impressions and were presented with all of the facts about the structure and function of a new impression, we could deduce that it was visual rather than tactile, say, and also, possibly, that (cf. Dennett, 1991, pp. 398–400) it was a color somewhere between red and green (like yellow) and not between green and purple (like blue).

A more potent point, however, is simply to point out that the non-eliminative reductionist position shows us a circumstance in which Chalmers' deduction does not hold—where his premise is true but his conclusion is false. If the non-eliminative reductionist position is true, then the facts about experience *as experienced*—how it feels or *seems* to an inside observer—are not deducible from the physical facts about structure and function, but it is not the case that experience is not reducible to the physical world as we know it[xvi]. In this perspective, it is reducible.

The best known form of Jackson's *knowledge argument* is his 'grey Mary' thought experiment. Top color scientist Mary acquires all of the physical information about her visual systems in her black and white room but learns what colors are really like on leaving it—but she had all of the physical information already so her new knowledge must refute physicalism.

Widely regarded as a significant challenge to physicalism[xvii], the argument has inspired significant debate over the years[xviii], and, indeed, continues to do so[xix], despite Jackson's later conversion (2003). However, its claim that physicalism *must* be false is easily refuted by the non-eliminative reductionist position. If it is true then Jackson's first premise can be false but appear to be true[xx]. Mary can seem to learn everything about visual processes inside her black and white room—a scientific account entailing both one guise of the problem itself and a full explanation of it—yet still learn something new on leaving it by learning what the inner guise is really like. Moreover, her new knowledge will be physical knowledge that is itself (made of) something physical—(experiential) knowledge of a physical state that is entirely reducible to that physical state—and so cannot reasonably be held to refute physicalism. If the Open University

taught Mary the non-eliminative reductionist view of qualia via a black and white television, the inner guise would be part of that teaching and Mary would in all probability be told about the limitations of the black and white medium as regards teaching her in that area. She would expect to learn something new on leaving the room and might even have a vague idea of the sort of something it would be—and neither she, nor anyone else, would think that what she learned on leaving the room made a blind bit of difference to physicalism.

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- [i] In the paper, I use sensory states as quale examples, but I take qualia to include all mental states, including (with Strawson, 1994) thoughts.
- [ii] These, it is assumed, may be either complex and spread out across the brain, or simple and of more limited locale. However, this makes no appreciable difference to the points argued and will largely be ignored in this paper.
- [iii] The word guise is borrowed from those who have put the “old fact/new guise” case against Jackson’s Knowledge Argument (of which I have more to say in Section 5 of this paper) and there is some overlap between the position I am presenting and the view of qualia encompassed within the “old fact/new guise” case (Lewis, 1988) and (Nemirov, 1980) are examples but there are many others. As will become clear as we proceed, however, my aims here are somewhat wider than a simple refutation of Jackson’s position.
- [iv] No specific claim is made as to the nature of the physical states in question and it is not important to the position stated.
- [v] The brain and its soggy grey matter are convincingly solid, partly because of the complexity of the sensory construct involved, and partly because this is an accurate reflection of an underlying reality that is substantial and solid, and that confirms that solidity to the external observer via the sense of touch as well as vision, as well as via its ability to interact with other real objects in the world. However, our observations of it are experiential nonetheless.
- [vi] This is a widely held view of qualia (cf Tye, 1999, pp. 708; Deutsch, 1999, pp. 5; Gertler, 1999, pp. 320; Flanagan, 1992, pp. 98–101) which most of us would, I think, intuitively agree with.
- [vii] Notice, incidentally, that this would also explain why qualia cannot be observed at all externally.
- [viii] In the interests of clarity and brevity, and because it makes no substantial difference to points being argued, I shall assume for most of what follows that we are talking about one experience and one set of external correlates for any given quale—but see also Concluding Remarks 2 at the end of this paper.
- [ix] I take anything experiential to be conscious even where we are “unconscious” of that consciousness except via later memory of it. Unconscious in this sense is not the same as non-conscious, which I take to mean non-experiential. When we have a red experience, we are conscious of it, and can remember this later. Being conscious of being conscious of it in the present I take to involve having a single experience encompassing both the red experience and an experience of words that tell me I am conscious of the red experience—a wider perspective but not different otherwise to the simple red experience. Being non-conscious means there is no experience and no consciousness at all.
- [x] It may even turn out that there are associated fundamental properties involved as Chalmers suggests. However, in the position presented, any route to this conclusion would be based on external correlates and follow the accepted scientific path.
- [xi] Although, it may force some changes in how we tend to view the nature of the physical world.
- [xii] See Aizawa, K. & Gillett, C.(2009) for a recent summary of the case for and against multiple realisation.
- [xiii] Himself following related arguments by Nagel (1974).
- [xiv] The position might be seen as an Identity Theory of sorts, although this would be misleading since the

perspectives that give us the quale and the brain state are not seen as identical but rather as different perspectives on a single physical state, one of which is ontologically identical with that state. An important upshot of these differences is that there is no difficulty with Leibniz's Law (if x is (identical with) y, then any property of x is a property of y). The phenomenon that is both quale and brain state is seen as both, non-extended, non-solid, non-located in space, private, and "like" something when viewed from the quale perspective, and publicly-observable, material, spatially-locatable, and with a discoverable functional role (cf. Himma, 2005, pp. 3) when viewed from the brain state perspective. Identity theories such as are associated with Place, Smart and others (see, for example, the positions described and contested in Borst (1970)) had to combat claims of conflict with Leibniz's Law in just these areas, but there is no conflict with the non-eliminative reductionist position. There is one reality with a single set of properties experienced in two different ways at the heart of the non-eliminative reductionist claim—a reality that, physically, wholly subsumes experience, bringing it and all of its properties entirely within the bounds of scientific investigation.

[xv] This does not mean that Chalmers is necessarily wrong about the conceivability of zombies, only that he might be. However, if he might be wrong about zombies, then he might also be wrong about physicalism and consciousness, and this is the point. It is possible that he is wrong—he will be wrong if non-eliminative reductionism is true (cf Sommers 2002 arguments against the conceivability of zombies)

[xvi] Nor, indeed, that we cannot deduce what such things as baseline experience and blueness are like functionally from the physical facts—or, maybe, to some extent, what they seem like if we have experiential reference points to work on.

[xvii] Even by those who themselves espouse physicalism—see, e.g., Graham and Horgan (2003) and McDonald (2004)

[xviii] Alter (2007) has a useful summary.

[xix] See, for example, Horowitz and Jacobson–Horowitz (2005).

[xx] For other first premise based counter-arguments see Flanagan (1992); Conee (1994); Deutsch (1998); Sommers (2002).