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Bifactualism

A New Physicalist Response to the Knowledge Argument

Abstract: *The knowledge argument is an argument for dualism that claims that there are both physical and non-physical facts, something we can know by reflecting on 'Mary' who is aware of all scientific data about colours but has yet to see any. I reject the dualist conclusion and instead provide a new physicalist response that I call 'bifactualism'. Bifactualism is a novel physicalist account comprising two elements. First, like dualism, it distinguishes between two kinds of facts: general and particular facts. Second, unlike dualism, it claims that the general/particular distinction (and not any physical/non-physical distinction) may explain facts about experience. There are certain facts that go undocumented in what is expressible in the language of the physical sciences because the language of the physical sciences concerns only general facts, whereas experience, I argue, essentially involves learning particular facts. Thus I argue that the case of Mary does not support mind/body dualism, and instead provides at least equal reason to support bifactualism. Since the general/particular distinction is one we are stuck with regardless of the status of mind, bifactualism emerges as a more parsimonious and hence preferable account of experience.*

1. Introduction

What kind of fact do we learn when we experience something? According to several theorists, the *kind* of fact we learn from experience tells us something about the nature of the mind. Experience gives

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us a certain kind of knowledge which seems different from the kind of knowledge we can get from sciences for instance. Because the knowledge obtained through experience seems different from knowledge we may learn from a book, many theorists, from both dualist and physicalist camps, have debated whether this knowledge gained through experience is physical knowledge or non-physical knowledge. Frank Jackson provides a famous formulation of this debate in a thought experiment, the hypothetical results of which form the basis of the *knowledge argument*. In this paper I propose a novel analysis of this argument in terms of a distinction between particular and general facts. Following on from this analysis, I put forward a view, which I call *bifactualism*,[1] which does justice to the knowledge argument while still maintaining that all facts are physical.

As mentioned above, the nature of what we learn through experience is very important in the dualist/physicalist debate; and, because of this, a lot of time and effort has been invested in Frank Jackson's knowledge argument. In 'Epiphenomenal Qualia' (1982), Jackson introduces a thought experiment whereby a scientist by the name of Mary is able to learn all physical facts in a black and white room and when she leaves the room she learns *something else*. The nature of this *something else* she learns is problematic for both dualists and physicalists.

In this paper I introduce a view I call bifactualism. Bifactualism is a physicalist account which comprises two elements. First, it distinguishes between two kinds of facts: general facts and particular facts. Second, it claims that this distinction could explain facts about experience. This view enjoys a distinct advantage over alternative views outlined in this paper. Not only does it address the kind of knowledge Mary gains both in and out of the black and white room, as so many others have (Jackson, 1982; Lewis, 1988; Nemirow, 1980; 2007; Churchland, 1989; Chalmers, 1996; Alter and Walter, 2007); it also addresses the physicality or non-physicality of these newly acquired facts, which many theorists neglect to do. Bifactualism says a bit more about the type of fact Mary learns and concludes that these facts are indeed physical.

The remainder of this paper is divided into six sections. In Section 2, I give an account of the knowledge argument according to Jackson.

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[1] This paper is based on work done by Swanepoel (2013) *Bifactualism: A Physicalist Account of Experience*, unpublished manuscript, University of Johannesburg.

In Section 3, I explore the semantic theory of indexical expressions as offering a possible response to the knowledge argument. I refer to this as the *indexical response* (following David Chalmers). The indexical response appears promising, and has something right about it, but it suffers from insurmountable difficulties. The difficulties include the truth value of indexical claims, the status of indexicals with regards to factual knowledge, and the uniqueness of indexical claims with regards to the location of an agent in relation to an object. In Section 4, I introduce the view I call bifactualism, and indicate how it improves upon the indexical response, overcoming the central difficulties for that response while preserving what seems right about it. In Section 5, I examine some objections and possible replies to these objections; and lastly I conclude by exploring whether and how bifactualism could be a view which should be considered a serious contender in the dualism/physicalism debate.

2. The Knowledge Argument

Frank Jackson presented the knowledge argument in his paper titled 'Epiphenomenal Qualia' in 1982. Jackson introduces a thought experiment about Mary, the neuroscientist. Mary has spent her entire life in a black and white room specializing in the neurophysiology of vision and is therefore an expert in wavelength combinations of colours and their effect on the eye and brain. She learns all these physical facts from what the language of the physical sciences is able to tell her. Jackson claims that '[t]he physical sciences tell us a great deal about what our world is like. They also tell us a great deal about what we are like. They tell us, for example, that our bodies are made up of the stuff that the physical sciences — physics, chemistry and biology — talk about' (Jackson, 2003, p. 1).[2] After a few years of learning all the

[2] Whenever I refer to what is expressible in the language of the physical sciences I am referring to the kind of knowledge available to Mary through physics, chemistry, biology, and the like, which is what I believe Jackson was alluding to when he made claims about the physicalist story (Jackson, 1982; 2003). Initially, I referred to this as the language of physics because the 'root notion of physicalism is "physics" and, second, that "physics" includes more than simply "matter"' (Stoljar, 2010, p. 10). McGee (1991, p. 76) writes that linguistic physicalism is the 'doctrine that every (genuine) property can be described within the language of physics' and that 'every scientifically legitimate general term is coextensive with some open sentence of the language of physics' (*ibid.*, p. 77). However, an anonymous referee pointed out that it is debateable as to whether all other sciences can really be strictly reduced to what is expressible in the language of physics and to the laws of physics, and many theorists

physical facts there are to know about colour, Mary is released from the black and white room and *sees* colour for the first time.

Jackson concludes that Mary, in her room, lacks a certain kind of knowledge which cannot be gained by learning the physical facts expressible in the language of the physical sciences. Jackson is saying that 'physicalism is knowledge about the experiences of others, not about her own' (Jackson, 1982, p. 278). He goes further to state that if physicalism is true, then Mary, by learning all the physical facts about colour, knows all there is to know about colour. It is important to note the two claims this argument makes: firstly, that before her release Mary learned and subsequently knows everything there is to know about the physical facts of colour; and secondly, that when Mary escapes from her room, upon experience, she learns something new. She apparently learns *the feeling of what it is like* (Nagel, 1974) to experience something and this is also sometimes referred to as qualia (Jackson, 1982).Therefore, what she learns cannot be a physical fact because she knows all the physical facts already.

In the knowledge argument, Jackson does little to show how any interaction takes place between these qualia and physical properties. This is no fault of his, since the knowledge argument is concerned with the type of knowledge she learns, not necessarily how she comes to learn it. In actual fact, showing the interaction between non-physical properties and physical properties is a major problem in philosophy of mind. Physicalists reject any interaction between the two by claiming that it seems implausible that non-physical properties are causal in any physical way, and thus it is implausible that qualia play any part in why we do things, if qualia are non-physical properties as the dualist maintains.

The causal closure of the physical stipulates that every event has a sufficient physical cause (Kim, 2005). Thus, on a dualist view of qualia, qualia have no effect upon the physical. A well-used example is that of being in a state of pain. For functionalists, for instance, being in a state of pain is being in a certain brain state that is pain. For dualists,[3] pain is a quale. When a person touches a hot stove, pain is

have argued that this reduction is not possible (Crane and Mellor, 2002; Piercey, 2013). This is a debate I did not want to get into here and therefore I decided to instead use 'what is expressible in the language of the physical sciences' as the kind of knowledge Mary had access to in the black and white room.

[3] In this paper, I do not explore different kinds of dualism and physicalism as it is beyond the scope of this paper. Instead, when I refer to dualist views, I refer to the view that

felt which (may) cause the person to rapidly withdraw her hand. It is debateable as to whether the pain *is* the cause for the withdrawal from the source of pain. Some theorists (Bayne, Cleeremans and Wilken, 2009) argue that there is a time delay of conscious awareness which does not directly coincide with action: 'It seems likely that the action was initiated independently of the experience of pain' (*ibid.*, p. 317). Dualists have a hard time explaining how this feeling of pain (a non-physical property) sends a message to the body to cause the withdrawal of the hand from the source of pain. Physicalists have tried to overcome this problem of interaction or causation by claiming that this pain state is purely a brain state.

Above, I gave a version of the knowledge argument that approximates to Jackson's original 1982 presentation. However, the argument was refined in subsequent treatments. Chalmers (2002, p. 250) offers the following representation of the knowledge argument:

(1) Mary knows all the physical facts.
(2) Mary does not know all the facts.
Hence, (3) the physical facts do not exhaust all the facts.

While there have been various other versions (Alter, 1998; Alter and Walter, 2007; Jackson, 1986), I confine my attention to this standard and simple version; throughout this paper I consider other renditions but for obvious reasons do not look at all the possible versions of the knowledge argument as this is beyond the scope of this paper.

3. The Indexical Response to the Knowledge Argument

In this section I focus on indexicals and consider whether their semantic analysis offers a response to the knowledge argument. It seems that the indexical response is less explored than other responses to the knowledge argument and I find this interesting, given the overall contribution a much revised version can offer to the claims made in the knowledge argument. It is my aim here to show how the indexical response has some merit (albeit with problems) in showing how some claims made in the knowledge argument are mistaken. Firstly, I am going to give a brief definition of what an indexical is. Secondly, I am going to review some important contributions by John Perry (1979).

there exist non-physical properties as well as physical properties or that there exists another type of property which is not reducible to the physical.

Thirdly, I discuss Chalmers' view on how indexicals impact on the knowledge argument. My next move is to show that the knowledge argument makes a mistake by conflating indexical and non-indexical knowledge. This is considered a somewhat standard response to the knowledge argument, but this move is important to show how the indexical response could be revised.

Let's begin with the definition. An example of an indexical statement would be if you walk into your office and you see your notebook lying on the table, and say to yourself: '*That's* where *I* put *my* notebook… *this* is where *I* left it yesterday.' Related to Mary, an example of an indexical statement would be if Mary comes out of the black and white room and says: 'Oh, so *this* is what it is like for *me* to see *that* red rose over *there*.' Her ability to say this sentence is based on the fact that she is occupying a space in relation to an object and is therefore able to make a reference to the object in a way that others, who are not in that similar situation, cannot. Therefore, indexical expressions are statements, claims, or references that can only be made when an agent occupies a certain relation to an object.

Perry sees a link between indexical statements and the kind of knowledge Mary learns once she leaves the black and white room. He claims that 'just as epiphenomenalism is the real issue with the zombie argument, the subject matter assumption is the real issue with Mary. Those who hold it… [the subject matter assumption], dualist or physicalist, have a problem with Mary's knowledge. Those who reject it, dualist or physicalist, do not' (Perry, 1999, p. 145). The subject matter assumption Perry speaks of here is related to the fact that the knowledge argument is interesting to those who see a gap in the knowledge between what is learned in the black and white room and what is learned outside of the black and white room. The knowledge argument holds no interest to those who see no gap in the knowledge that Mary learns and comes to learn. Perry has a problem with the subject matter assumption and therefore puts forward an indexical response to the knowledge argument. The problematic claim made in the knowledge argument is that Mary comes to learn something new upon experience. He recalls that the only way to attend to a subjective character of experience is while one is *having* this subjective character of experience.

According to Perry, physicalists should not be sceptical as to the nature of the subjective character of experience because, if we are convinced of physicalism, the existence of qualia do not disprove physicalism but rather are regarded as consisting purely of physical

states and processes (Perry, 1999, p. 145). This is closely related to the causal closure of the physical I briefly discussed above. Perry claims that certain physicalists would argue 'that experiences are brain events, and qualia are real physical properties of those brain events' (Perry, 2001). When we are in the process of experiencing our subjective character, we communicate these experiences by using the flexible demonstrative 'this'. A flexible demonstrative is used to indicate 'this feeling is the one I've been having', Perry also refers to this particular use of 'this' as an inner demonstrative (Perry, 1999, p. 146).

According to Perry (*ibid.*, p. 146), Mary, in the confinement of the black and white room, is able to make the following claim:

(1) Q_R is what it's like to see red.

When Mary is finally able to see a red tomato for herself, she is able to make use of the following expressions:

(2) This_i is what it is like to see red.
(3) Q_R is this_i subjective character.

Perry further labels the beliefs expressed in (1), (2), and (3) as *b1, b2, b3.* Thus, for the physicalist, the following is true:

- 'Q_R is a physical state, a physical aspect of the normal experience of seeing red.
- (1), (2), and (3) are true.
- When Mary leaves Jackson's room she learns something new, by forming the new true beliefs *b2* and *b3* that she expresses with (2) and (3).'

Perry identifies this kind of new knowledge as recognition (in line with Lewis's, 1988, and Nemirow's, 2007, ability hypothesis).

With regards to the knowledge argument, *b1* is a detached belief Mary has about the seeing the colour red. She has formed this detached belief based on the information she gleans from the books and other forms of information she has available in the black and white room because she is not 'connected to an act of attending to a subjective character' (Perry, 1999, p. 147). Belief *b2*, however, is attached to a particular experience and therefore this belief is attached to that experience. For Perry (*ibid.*, p. 148), the subject truth-conditions of (2) are exactly the same as those of (1). Perry states that a subject truth-condition is such that a belief is strongly attached to the idea of self-notion. This belief is based on 'the person that owns the

notion; that is who such beliefs are about' (Perry, 2002, p. 238). Therefore, when Mary sees red and is able to form a belief based on this act, she has an ownership of that belief as a self-notion. The reflexive truth-conditions[4] of *b2* are different [in that] *b2* is true iff the act of inner attention to which it is attached is of the subjective character of the experience of seeing red' (Perry, 1999, p. 148). Perry gets around the problem set out in Jackson's knowledge argument by suggesting that *b3* 'is true iff the act of inner attention to which it is attached is of the origin of Mary's Q_R concept' (*ibid.*). Thus, for Perry, Mary comes to learn a new truth-condition on Mary's beliefs which occurred when she saw a tomato for the first time and learned the subjective character of that experience. For Perry, no new fact is learned but rather a change in belief of an old concept. This change of belief is cemented by Mary's ability to use an indexical expression such as 'this is what it is like to see red'.

Chalmers notes that Perry's 'response, essentially, is to analyze phenomenal knowledge as a sort of indexical knowledge' (Chalmers, 2004, p. 184), that is, as knowledge of the truth of indexical expressions. He also rightly notes that indexical knowledge is such that it is not deducible from a complete knowledge of what is physical (this I will discuss in more detail later). Perry's strategy, as Chalmers sees it, is to explain the epistemic gap between what is physical and what is phenomenal by maintaining that phenomenal knowledge is a species of indexical knowledge. Chalmers (2004, p. 185) states, in response, that phenomenal knowledge is not indexical knowledge as he claims that 'indexicals accompany facts about conscious experience in their failure to supervene logically on physical facts, but they are all settled by the addition of a thin "indexical fact" about the location of the agent in question' (Chalmers, 1996, p. 144).

According to Chalmers, Mary, in the black and white room, is ignorant of what it is like to see red and even more ignorant of what it is like for other people to see red. The first situation seems indexical in nature and Chalmers gives the example of a physically omniscient observer, who has complete physical knowledge, but will have no idea of what it is like for Mary to see red. Chalmers explains that the

4 Reflexive truth-conditions, according to Perry (2002, p. 232) are 'conditions on the things we take for granted in getting to the subject matter, namely, the words themselves', which means this content is not part of the content of the subject content but rather part of content as a whole (Baker, 2013).

'ignorance does not evaporate from the objective viewpoint' (Chalmers, 2004, p. 187). He further claims that, for any observer, 'there will be an epistemic gap between complete physical knowledge and this sort of phenomenal knowledge' (*ibid.*). Based on this, Chalmers concludes that facts about consciousness do not supervene on the physical.

I take issue with Perry's indexical response to the knowledge argument because I believe that a new fact is learned and, further, that it is more than just a belief indexically attached to an experience. The reason we are able to make specific reference to things through the use of indexicals is because there is something *particular* to reference (more detail to follow). On the other hand, I also hold that Chalmers has underestimated the role indexicals play in the knowledge argument. He may be right in pointing out that indexicals do not quite address the main concern in the knowledge argument with regards to the type of fact learned, but I think he is wrong to dismiss the indexical response as implausible or as 'relatively uninteresting' (Chalmers, 2004).

Chalmers interestingly claims that 'even when we give Mary perfect knowledge about her indexical relation to everything in the physical world, her knowledge of red experiences will not be improved in the slightest. In lacking phenomenal knowledge, she lacks far more than someone lacking indexical knowledge' (Chalmers, 1996, p. 144). There are a few points I find problematic about Chalmers' above claim. Providing Mary with perfect knowledge of her indexical relation to everything in the world would require her having *access* to these objects and this would subsequently mean that her knowledge of a red experience improves greatly. It has been pointed out[5] that it is possible for Mary to learn even a few indexical facts about her position in the world, and given a complete objective knowledge she would be able to make many/any indexical claims about the world from within the black and white room. This is possible, but these indexical expressions would lack the kind of subject truth-conditions which Perry has argued for and are therefore baseless in their descriptions. It is entirely possible that there are indexical truths which are physical facts about physical experiences which cannot be truthfully generated in the black and white room.

5 An anonymous referee pointed this out to me for which I am grateful.

The following reworking is a possible indexical response to the knowledge argument:

> (1) Mary learns all non-indexical physical facts. (From Perry's arguments against the possibility that she knows all indexical physical facts.)
> (2) Mary learns a new fact.
> Hence, (3): Either Mary learns a non-physical fact, or Mary learns an indexical physical fact.

This conclusion is disjunctive, with one disjunct being the dualist conclusion Jackson originally aimed for, and the other being compatible with physicalism. Thus, even if this reworking defeats the knowledge argument for dualism, the physicalist should not consider it a satisfactory response as it stands. This response remains unsatisfactorily neutral as to the physicality of these indexical facts. Based on this, we have equal reason to question the existence of physical indexical facts as we do the existence of non-physical indexical facts (see Chalmers, 1996 and 2004). For this reason, I conclude that Perry's response to the knowledge argument is not a satisfactory resting point for a physicalist.

The physicalist should explore the nature of indexical physical facts — to discover if the truth-conditions of such expressions may indeed supervene upon the physical, which I argue they do. There is something interesting about indexicals that hasn't really been explored in great detail and that has to do with the categorization of facts. I turn to Kevin Mulligan and Fabrice Correia (2013) who claim that 'a fact is just a true truth-bearer; a fact is just an obtaining state of affairs; [and/or] a fact is just a *sui generis* type of entity in which objects exemplify properties or stand in relations'. To state that the indexical expression 'I am sitting at my table' does not satisfy these criteria would be erroneous. This is important for the next move that I make with regards to the different kinds of facts available to us. 'Jill is sitting at that table' is a fact about a human being, and thus an object, in relation to a table, which is surely an object exemplifying 'properties'. Let's call the fact that is referred to by a true indexical expression an 'indexical fact'. Therefore, an indexical fact is a fact about *this* particular table *here* or *that* particular person over *there*.

Perry claims that Mary learns a form of recognition, as a belief is attached to a subjective experience. In line with Nemirow (2007) and Lewis (1988), Perry (2002) attributes this new kind of knowledge to an ability or belief rather than a new kind of fact. However, given the

definition provided by Mulligan and Correia (2013), I argue that Mary comes to learn a new fact. This is important for my view because I show that the knowledge argument fails to show that indexicals can and should be recognized as more than just a belief. This brings me to another important point.

The argument set out in the knowledge argument either treats indexicals and non-indexicals as the *same type of knowledge* or does not consider the truth-makers of indexical expressions to be *facts*. Therefore, according to Jackson, non-physical knowledge is learned. It is important to note that it does not automatically follow that the new knowledge is non-physical based on this erroneous assumption that what she learns is no new fact. The above point shows that there are indexical facts Mary can come to learn upon her release. In addition, it seems the unintentional assumption in the argument is that there is no difference between indexical facts and non-indexical facts and that both are the same kind of knowledge and that both can be learned in the black and white room. But this seems erroneous because we have already seen that she cannot learn all of both kinds of facts in the black and white room. In the knowledge argument, the difference between indexicals and non-indexicals is not the focus, which is a pity, given that the kind of fact learned is of an indexical nature.

It appears that the truth-conditions of indexical claims do not supervene on what is expressible in the language of the physical sciences. But they do, however, supervene on a particular physical fact (a bifactualist term as discussed in the next section). It can be argued that particular physical facts are the supervenience base of indexical expressions about physical facts. It can be argued that there could be no difference in the indexical physical facts without the difference in the particular physical facts. For Mary to say 'I see this red rose' would require a particular physical fact of the existence of a particular red rose. If Mary said 'I see this red rose' and the particular physical fact is that of a white rose, her indexical expression would be false. A correct and true indexical expression is dependent on a particular physical fact. If the particular physical fact changes, so does the indexical expression.

In the next section of this paper I propose something a bit stronger and show that the fact Mary comes to learn is physical. I do this by introducing a new view called bifactualism. Bifactualism is a response to the knowledge argument and it is primarily a physicalist point of view which takes the idea of indexicals and develops it further into a possibly new physicalist account of experience which shows that

indexical facts facilitate the learning of particular physical facts and supervene on particular physical facts and that Jackson is not justified in claiming that indexicals do not make up scientific fact.

To summarize this section, we have explored the possibility that: 1) the language of the physical sciences contains no indexical expressions; 2) there are true indexical expressions about physical things and particular physical facts provide examples of these; 3) thus, there are truths about physical things which are not expressible in the language of the physical sciences and the reason for this is because the language of the physical sciences is not about indexicals.

4. The Bifactualist Response

Bifactualism holds that there are two types of physical facts, which I call general physical facts and particular physical facts. The majority of facts which are expressible in the language of the physical sciences are general facts. A general fact (in the sense of what is expressible in the language of the physical sciences) is a truth-bearer about objects or things in the world which share defining underlying characteristics.

For example, a general fact[6] about tables would include their general function, structure, and possible purpose. When we speak of tables using general facts we make statements starting with forms of words such as 'all tables are…' or 'no tables are…'. When we make statements or claims such as these, we make use of quantified generalities. There are at least two ways in which general facts are used. One is to make use of universal quantifiers which are statements about all or none of a group, and the other is to make use of existential quantifiers which is to show the existence of something. An example of the latter would be 'some *x* is *f*' or 'there exists an *x* such that *x* is *f*' (Mautner, 2005, p. 634). A universal quantifier of P(x) is the statement 'P(x) for all values x in the universe' which in formal logical notation is written as $\forall x \in D$, P(x). The language of the physical sciences refer to objects in the world using general statements such as these in order to grasp a general understanding of the way the world is.

6 When I write of generalities and particulars, I do not want the reader to confuse this with discussions about universals and particulars. A universal is 'something shared by different particular objects' (Mautner, 2005, p. 633). A particular would be an instance of the universal. Therefore, what I'm trying to express here has very little to do with universals or particulars in the way it is generally understood in metaphysics. *General physical facts* and *particular physical facts* are bifactualist terms.

The physical sciences, and what is expressible in the language of the physical sciences, provide information in such a way that it can cover a lot of subjects and concepts without going into much detail. The Mill-Ramsey-Lewis account 'proposes that laws of nature be regarded as axioms or theorems that appear in those deductive systems that strike the best balance between strength of description and simplicity' (Jackson and Smith, 2005, p. 797). The strength of a system is normally decided based on the number of true facts about the world it can capture. This would mean that the higher number of true facts the physical sciences have about the world, the stronger it is as a deductive system.

Importantly, having access to general information about all the objects in the world will allow persons to make reference to objects they have never encountered. For instance, I have never encountered (in person at least) black jaguars before, but I can still make reference to them. I could say something like: 'black jaguars mostly live in South America.' The individual objects in the world which the perceiver has never encountered have distinct features, characteristics, or properties which the general descriptions will fail to describe. For instance, I can make reference to black jaguars in general but I cannot make reference to a particular black jaguar which is just now drinking from the River Amazon. It may be a particular shade of black or it may have a scar above its left eye, and this information I am not privileged to with the kind of information available in textbooks (what is expressible in the language of the physical sciences).

When I write of the particularity of an object, it does seem reminiscent of trope theory,[7] and here I'd like to show how bifactualism differs. According to Mautner (2005, pp. 626–7), trope theory deals with 'abstract particulars. An example would be the redness of a particular red surface… they are not concrete: they are abstract in that they almost always come in clusters and can be grasped only by means of abstraction'. Maurin (2014) writes that, with regards to a particular red rose, '[g]iven trope theory, this rose is red because it is partly constituted by a redness-trope'. Importantly, trope theory is an ontological theory and bifactualism is a response to the knowledge

7 An anonymous referee pointed out that some points made in bifactualism theory seem reminiscent of trope theory. A lot can be said about trope theory but I will not go into a lot of detail here as it is beyond the scope of this paper. My main objective here is to briefly show how it may contribute to bifactualism and how it is different from bifactualism.

argument and a response to the problem of experience. The bifactualist does not consider trope theory to be of major relevance to bifactualist theory because, regardless of whether or not a black jaguar has a different kind of blackness to that of a second black jaguar, the bifactualist argues that the particular jaguar drinking from the River Amazon (as a whole entity) is providing the perceiver with a kind of knowledge she cannot have access to with what is expressible in the language of the physical sciences. It may be the case that Mary sees a prowl of black jaguars and some are a lighter shade of black while others are a darker shade of black. It would mean that the black jaguars instantiate blackness-tropes. Some trope theorists (Campbell, 1990) argue that each individual jaguar has a distinct instance of a blackness-trope and that this particular blackness-trope will change if swapped or shared with another blackness-trope, thereby losing its distinct particularity. They can, however, *resemble* one another. The bifactualist has no opinion in this regard, it rather claims that regardless of the ontological status of an object (therefore the trope status of an object) there is something particular to be had in any *experience*. Further, I'm going to give more examples of particular physical facts which are not expressible in the language of the physical sciences.

Let's use whales as an example and show what facts about whales are expressible in the language of the physical sciences. Whales are mammals because they breathe air, they are warm-blooded, and give birth to live young and feed them as mammals do. Whales also 'have a smooth, sleek shape. Instead of arms and legs, whales have fins and a sideway tail called a fluke' (Greenberg, 2003, p. 20). From this description, if Mary were to leave the black and white room she'd be able to identify a whale and even make the indexical claim: '*this* is a whale' or 'this is what it is like for me to see a whale'. But there is something that the story of the physical sciences left out and Mary would discover this when she sees her first whale. Perhaps this particular whale she is seeing for the first time has been harpooned once or this whale has been afflicted with barnacles. Suddenly the description having 'a smooth, sleek shape' does not necessarily apply to this particular whale.

Mary learns two things from this particular experience of this particular whale: first, she is in the position to truly make an indexical claim and, second, this indexical claim depends on the existence of this particular whale with its particularity she would not have known about in the black and white room. She can say of this particular whale, '*this* whale has been injured and *my* textbooks never told *me*

about *this* whale and how *it* was injured'. All these indexical claims depend on the particular physical facts about this whale.

The language of the physical sciences can tell me about books. It can tell me about bookshelves and it can tell me about coffee stains. However, it cannot tell me about a particular book I have on my bookshelf and that on page 47 you'll find a coffee stain. Not a perfectly round coffee stain but rather a marred coffee stain made by a chip in my mug, which again, textbooks could not tell me about. The language of the physical sciences can tell me about cars and it can be tell me about scratches and dents. However, the language of the physical sciences cannot tell me about the scratch and dents on my particular car, the ones just above the front left tyre.

Particular facts are about objects which exist at a particular place and time and have unique characteristics. These facts are particular or specific and therefore do not satisfy conditions of universally quantified statements. Universally quantified statements will make claims about all or some things. There are particular facts about a particular object at a particular space and time which the story of the physical sciences cannot tell me about. There are facts which escape the physicalist story and some of these facts are facts about particulars. These facts are more than general facts with indexicals added to them. Teed Rockwell observes that

> Fido will have a distinctive pattern to his fur, and flecks of dirt on his feet from his morning walk, Rover will be bigger and taller than Fido and have a slightly crooked left incisor that he inherited from his sire. None of these factors is accounted for when we classify Rover and Fido as dogs, and this doesn't bother us, because we can sense that the concept of dog somehow captures what Fido and Rover have in common. (Rockwell, 2005, pp. 121–2)

The obvious commonality between Fido and Rover is that parts of their description can be understood or known through general physical facts.[8] Their being dogs with fur and four paws, for instance.

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8 Rockwell further claims that 'knowledge of particulars is only acquired by applying universals to them' (2006). I'm a bit wary of referring to generalities (as I have outlined them) as universals for the reason I noted above in footnote 4, and I think Rockwell should be careful here too. He makes some interesting claims, but I think he could have done more to show the difference between the use of a universal and the use of a generality in science. In agreement with Rockwell, the problem with applying generalities to a particular object such as Moby Dick is that we end up knowing very little about what is particular about him.

Let's say we can accept that there are two kinds of facts that Mary can come to know. The challenge now is to show how they are both physical. The physical sciences express their findings using general facts; however, there are some facts which are not expressible in the language of the physical sciences which are facts about the particular. It is not the case that 'only propositions expressible in the language of physics can be true, or that only individuals in the domain of physics can exist' (Haugeland, 1998, p. 101). It is entirely possible that facts can exist outside of what is expressible in the language of the physical sciences, or that facts can exist outside of what is expressible through the use of quantifiers and universals.

I admit that Mary is lacking knowledge in the black and white room, but I do not agree that this knowledge is non-physical. We have determined that it is possible that Mary learns non-indexical facts (and some indexical facts) in the black and white room and comes to learn indexical facts once outside. An indexical fact is one about an object in a spatio-temporal sphere, for example: *that* rose, *this* rose, *these* roses, etc. A non-indexical fact is a fact about things in general and requires no relation to an object in a spatio-temporal relation, for example: *a* rose, *many* roses, *all* roses, etc. Therefore, indexical facts are *not* dependent on general physical facts but *are* dependent on particular physical facts.

So far I have shown that the indexical response to the knowledge argument is compatible with physicalism only once we show a distinction between general and particular physical facts. Chalmers argues that indexical expressions do not supervene on the physical and this may seem so without the distinction between general and particular facts. Once we see the distinction, we know that indexical expressions are dependent on particular physical facts — there is clearly a relationship of supervenience going on here. A change in a particular physical fact will result in a change of an indexical physical fact.

An indexical is about access to the facts which are not expressible in the language of the physical sciences, and these facts are particular physical facts. An indexical fact is a fact about an object in relation to a location and time. Bifactualism claims that this information is *not* expressible in the language of the physical sciences because we cannot use quantifiers to express this information. More so, this information is very particular. An indexical term is not going to cover the particularity of the object; it is going to point it out. What this means is to say 'this rose' does very little to explain that this rose has 10 thorns and is

a lighter shade of red than the rest in the bouquet.[9] This is the crucial difference between the bifactualist response and the indexical response. Indexicalism is essentially about location and access. Bifactualism is about particularity of unique characteristics which is ungraspable in the language of the physical sciences. To simplify this further, indexical facts may make it possible, in some instances, to know some of these particular facts because indexical physical facts supervene on particular physical facts.

Making an inference to the best explanation, I argue that the indexical disambiguation of the knowledge argument initially does not tell us whether the second disjunct is physicalist-friendly or not. However, by showing how indexical facts can be particular physical facts and that these are not expressible in the language of the physical sciences shows that this second disjunct is physicalist-friendly. Particular physical facts do not supervene on what is expressible in the language of the physical sciences. Indexical physical facts supervene on particular physical facts. Therefore indexical physical facts do not supervene on what is expressible in the language of the physical sciences.

This would mean the following for Mary: when she sits in the black and white room, she learns about roses in general. She learns that they have thorns, they have stems, they are a variety of colours, they have petals, etc. She has a good grasp of general physical facts about roses. Once she leaves the black and white room for the first time, she sees a red rose up close and suddenly notices that it is not quite the way the general facts portrayed it to be. *This* particular rose (making use of an indexical here) has five thorns, one thorn is placed strangely close to the petals, the stem is crooked and bent, and the rose has lost at least half of its petals. These facts about this particular rose she could not have learned in the black and white room because science couldn't have told her these things. Therefore, there were facts missing in the black and white room and only once she was able to leave the black and white room and come to know the rose as a particular was she able to see that these particular physical facts are indeed not reducible to the general physical facts. Once she has access to the particular physical facts, she can make truthful indexical claims because indexical facts supervene on particular physical facts.

9 Please see above comments about trope theory.

So what does this say about what we learn through experience? Drawing on Rockwell (2005, p. 122) again, 'how can we possibly develop a general concept when we are studying what is experienced as one awesomely unique case? No matter what we say about consciousness there will always be something left out, just as there will always be something left out when we say Rover is a dog'. Mary learns general facts from what is expressible in the language of the physical sciences about an experience she is going to have, and this information is mostly only of a general kind. Therefore, when she leaves the room she learns something new, she learns a particular fact and this fact is physical. *The feeling of what it is like* can therefore be seen as a species of a particular physical fact.

Like the indexical response, bifactualism defeats the knowledge argument by disambiguating and thus leaving the knowledge argument with a disjunctive conclusion, of which one disjunct is compatible with dualism and the other is compatible with physicalism — as follows:

P1: Mary learns *all general physical facts* and some particular physical facts in the black and white room.
P2: Mary leaves the room and learns a new fact.
P3: Either Mary learns a non-physical fact, or Mary learns a particular physical fact.

Again, this is disjunctive; but the physicalism-compatible disjunct of the bifactualist response appears more appealing than the physicalism-compatible disjunct of the indexical response. It is *highly plausible* that particular physical facts exist, and it doesn't seem altogether implausible that such facts are what Mary comes to learn. Moreover, her learning particular physical facts would be compatible with the causal closure of the physical. Secondly, this disjunction is appealing to dualists because it allows for the fact that Mary does not learn all physical facts in the black and white room and she does indeed come to learn something new.

To conclude this section, bifactualism seems the best response to the knowledge argument because Mary learns a particular physical fact not expressible in the language of the physical sciences. She couldn't have learned this fact in the black and white room because firstly she was never in the correct relation to an object to truthfully make any indexical claim and, since a particular physical fact can be seen as a referent of an indexical fact, she was not able to have access to the particular physical fact.

5. Objections to Bifactualism

An objection to bifactualism would be to say that if Mary had access to a CCTV camera and viewed a particular red rose outside of her room, and therefore had access to particular physical facts, like how many thorns it has, etc., she still would not know *what it is like* to see red.[10] The bifactualist would respond that it is not the case that all particular physical facts are facts about consciousness. It does, however, claim that all facts about her consciousness are particular physical facts. Mary is in the position to know some particular physical facts in the black and white room and she may not be in the position to know others, like the particular physical facts that accompany her experience of *seeing* red.

Another possible objection to bifactualism would be to say that surely the physical sciences express some facts as particular or at least as indexical. For instance, *this* test tube contains 5ml of liquid. Surely Mary would have access to this kind of particular fact (an indexical) that the language of the physical sciences can tell her about. The indexical used in this particular objection is not the kind of physical fact in the sense which Jackson himself originally meant to discuss in the knowledge argument. For Jackson, the kinds of facts available to Mary were scientific data which were fundamentally objective and general. Secondly, bifactualism does not claim that Mary can have no access to particular physical facts within the black and white room. It does, however, claim that there are many particular physical facts which she cannot come to know within the black and white room. For instance, when Mary picks up one of her black and white textbooks in the black and white room, then she can come to learn the indexical '*this* textbook of *mine*'. She therefore has learned a particular physical fact in the black and white room. However, Mary can never truly say 'this red textbook of mine' because the indexical remains meaningless given that indexicals are dependent on particular physical facts and it is a fact that Mary does not have access to a red textbook in her room.

A third objection[11] to the bifactualist is that it may be possible that particular facts do not go beyond what can be captured by general facts. An example: 'this (indexical) whale (general category) has a harpoon mark (general category) and barnacles (general category).'

10 My gratitude to Dean Peters for providing me with this objection.

11 An anonymous referee provided me with this objection for which I am thankful.

The bifactualist would provide two points as a response: firstly, as has already been pointed out, a meaningful indexical is dependent on a particular physical fact, not on a general physical fact, therefore using the indexical 'this whale' could not be expressed unless a particular physical fact of *this particular whale* exists. Secondly, general physical facts are truth-bearers about objects or things in the world which share underlying characteristics, and particular physical facts are truth-bearers about a particular object which satisfy one or all of these underlying characteristics.[12] The general physical facts about whales are not going to tell Mary much about the particular whale she sees before her. This particular whale swimming at a particular place at a particular time either satisfies the underlying characteristics she learns about through her access to general physical facts or it doesn't. There are general physical facts about whales in this world and there are particular physical facts about particular whales to be experienced. Just as there are general physical facts about conscious experience, there are no (or at least very few) general physical facts about *Mary's* consciousness. Just as she is incapable of learning a particular physical fact about a particular whale in her black and white room (because of the kind of knowledge available to her), she is incapable of learning certain particular physical facts of her conscious experience within the black and white room.

A final objection to bifactualism[13] is the claim that 'there seem to be general phenomenal truths that aren't deducible from the general physical truths, and particular phenomenal truths are not deducible from even a full knowledge of particular physical truths'. The bifactualist response to this is as follows: according to the causal closure of the physical, every event has a sufficient physical cause. It would thus be the case that either these general phenomenal truths which are not deducible from general physical facts are epiphenomenal or they are somehow reducible to general physical facts. It is also the case that either these particular physical truths which are not deducible from even a full knowledge of particular physical truths are

12 This may sound reminiscent of verificationism whereby the verification principle is such that a statement is meaningful if it is empirically verifiable. For a statement to be empirically verifiable it must be possible to confirm the meaningfulness of a statement by empirically experiencing/observing what is being communicated (Ayer, 1936). The bifactualist is not making verificationist claims *per se*, but it is possible that particular physical facts can confirm or disconfirm general physical facts.

13 An anonymous referee provided me with this objection for which I am thankful.

epiphenomenal or they are somehow reducible to particular physical facts.

As a second response to the above objection, I turn to Paul Churchland. In response to Jackson's knowledge argument, Churchland (1989, p. 2) argues that Jackson's argument is formally valid, but that the argument 'continues to see the same equivocation found in [earlier] castings of his argument'.[14] Churchland calls this the *parallel knowledge argument* (1989, p. 4). Churchland suggests that the knowledge argument is set out in such a way that it does not matter what Mary learns in the black and white room, there is always something to learn beyond the black and white room, be it knowledge of the physical or non-physical. If she learns all physical facts in the black and white room, she is still lacking something he calls knowledge by acquaintance.[15] Conversely, if she learns all non-physical facts in the black and white room, she is again lacking knowledge by acquaintance. The problem here is the lack of knowledge by acquaintance which cannot, for Mary, happen in the room. Therefore, the bifactualist would argue that even if one were to have complete knowledge of all general *phenomenal* truths in the black and white room, one would still lack knowledge of general physical truths and vice versa. The same goes for particular physical facts and phenomenal physical facts.

A representation of this will look something like this:

P1: Mary learns *all particular phenomenal facts* in the black and white room (which we have shown is not possible).
P2: Mary leaves the room and learns a new fact.
P3: Mary learns a particular physical fact.

Or,

P1: Mary learns *all particular physical facts* in the black and white room (which we have shown is not possible).
P2: Mary leaves the room and learns a new fact.
P3: Mary learns a particular phenomenal fact.

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14 Churchland refers here to the canonical representation of the knowledge argument Jackson set forth in the addendum: from 'What Mary Didn't Know' (Jackson, 1986).

15 Which, very simply put, means learning or being put in the situation where one is able to experience 'the feeling of what it is like' (Nagel, 1974).

Either way, according to the above objection, Mary will lack some kind of knowledge and this is what the bifactualist is trying to avoid. It would be difficult to show that a book, for instance, is a phenomenal fact based on the understanding that books in general do not have phenomenal states. The language of the physical sciences can tell me about the physical properties of the books you have on your shelf, but not that they *exist* and are on *your* shelf. Similarly, what is expressible in the language of the physical sciences cannot tell me anything *particular* about the office in which you find yourself, or the chair in which you sit, or even *about you* reading this paper (Swanepoel, 2013). If particular physical facts are phenomenal because they cannot be expressed in the language of the physical sciences, then it follows that the fact that you hold that particular pen in your hand is a phenomenal fact. 'Yet, all the physical properties of that state of affairs can be described by the physical sciences — a physical description can fully describe it, except for the *particularity*' (*ibid.*). This leaves us with a peculiar and contradictory conclusion that a non-physical fact 'satisfies an exhaustive description in the language of the physical sciences'. This clearly does not work. It certainly appears to be the case that particular facts are physical facts.

6. Conclusion

Jackson challenges the physicalist by suggesting a much discussed thought experiment called the knowledge argument. The knowledge argument is so highly debateable because both physicalists and dualists struggle to answer the question of what facts, according to Jackson, escape the physicalist story. The physicalist claims that if a fact escapes the physical story then it either does not exist, or is somehow reducible to the physical. Jackson argues that if a fact escapes a physical story then it is non-physical. I argue otherwise. There are facts which are not included in what is expressible in the language of the physical sciences.

In this paper, I argued for a new physicalist account I call bifactualism. Bifactualism claims that there are two kinds of physical facts. The one kind of fact is what the physical sciences are capable of expressing (the general physical fact), and the other kind of fact (particular physical fact) the language of the physical sciences is closed off to. Bifactualism is a physicalist account which, in some way, is compatible with some dualist claims because it allows the dualist the claim that something is missing from what is expressible in

the language of the physical sciences. Bifactualism also allows physicalists a way out of this dilemma by recognizing a physical fact (a particular physical fact) which is not expressible in the language of the physical sciences.

Acknowledgments

Many thanks to Alex Broadbent for his encouragement and invaluable contribution to this paper. Thanks to Thaddeus Metz for his advice on article writing and for his helpful comments. Thanks to Dean Peters who provided valuable feedback. I also thank the three anonymous reviewers as well as the associate editor of the *Journal of Consciousness Studies* who helped me greatly with further development of this paper. My sincerest gratitude to all who encouraged and supported me during this process.

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Paper received September 2014; revised November 2015.