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**Capacitism as a New Solution to Mary's puzzle**

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**Abstract**

In this paper, I argue for a new solution to Mary's puzzle in Jackson's famous knowledge argument. We are told that imprisoned Mary knows all facts or truths about color and color vision. On her release, she learns something new according to B-type of materialism and according to property dualism. I argue that this cognitive improvement can only be accounted for in terms of what Schellenberg has recently called "capacitism," namely the claim that that experience is constitutively a matter of discriminating and singling out particulars by employing perceptual capacities. Of course, I am not claiming that knowing the phenomenal character is simply the possession of abilities, let alone that the phenomenal character is a sort of know-how. That is why my claim is not affiliated with Lewis and Nemirow's ability hypothesis position. I take for granted here a sort of property-representationalism, according to which the phenomenal character of experience supervenes on the cluster of properties that the respective experiences represent. On her release, Mary acquires those perceptual abilities on the basis of which she learns to discriminate all shades of color. And after applying her old physical concept RED to the shade of red, she comes to know what it is like to experience red (propositional knowledge).

**Keywords:** Mary's puzzle, Jackson's famous knowledge argument, capacitism, concept RED

## Introduction

As Jackson's tale goes, Mary finally leaves the black-and-white room and, without the mediation of black-and-white monitors, sees something red, in this case a ripe tomato, for the first time. We are told that Mary is an ingenious neuroscientist of the thirtieth century who has exhaustive *knowledge* of all the physical facts about color and color vision. According to our pre-philosophical intuitions, she undergoes some cognitive progress when she sees the ripe tomato for the first time. The question is how to account for and explain this cognitive progress.

According to Jackson's old anti-physicalism, the assumption that Mary already possesses a complete set of all physical facts about color and color vision forces the physicalist to confront a problem. If Mary already knows all the *physical facts* about color and color vision, but she learns *a new fact* by perceiving color for the first time, the necessary anti-physicalist conclusion is that Mary learns at least one non-physical fact about color and color vision, or so Jackson argued in the Eighties.<sup>1</sup>

The most popular reaction to the knowledge argument is the assumption that, on her release, Mary acquires new special phenomenal concepts of some physical property or fact she already recognized as a physical concept in her confinement. Following Stoljar, we may call this the phenomenal concept strategy (henceforth PCS).<sup>2</sup> Now, considering that Mary's progress is not what Sainsbury and Tye call a "possibility-eliminating discovery," that is, the addition of a piece of knowledge that shrinks the set of worlds that are consistent with what we know,<sup>3</sup> Mary's cognitive progress can only take the traditional form of the discovery that Hesperus is Phosphorus or that Cicero is Tully. To put it in Tye's recent terms:

On this view, Mary makes a discovery when she leaves the room. But if physicalism is true, her discovery is a cognitive discovery yet not a possibility-eliminating discovery. In this respect, it is like the discovery that Hesperus is Phosphorus or that Cicero is Tully. Everyone agrees that the last two discoveries are significant, even though they do not eliminate possibilities; so too is Mary's. If Mary's room is to ground an anti-physicalist conclusion, however, what is required is that Mary's knowledge in the black and white room leave some possibilities open: she needs to make a possibility-eliminating discovery when she steps outside. (2012: 166)

However, the PCS has faced serious objections. Tye has convincingly argued that there are no phenomenal concepts *with the special nature required by the PCS*.<sup>4</sup> In his latest two books, Tye claims that Mary's discovery must be accounted for in terms of knowledge of things in opposition to knowledge of truths. According to his diagnostic, Jackson's knowledge argument relies on the assumption that all worldly knowledge is propositional, a knowledge *that*. Thus, rejecting this assumption, he claims that Mary's cognitive improvement is the acquisition of a thing-knowledge by acquaintance.

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1 See Jackson 1982: 130.

2 See Stoljar 2005.

3 See Tye 2012: 125.

4 See Tye 2009.

In his book of 2009, Tye has argued that what makes the difference, what accounts for Mary's cognitive improvement is the fact that Mary got acquainted with the color red for the first time on her release. Imprisoned Mary knows of the facts about color and color vision. Released Mary comes to know a thing by acquaintance. I reject Tye's proposal. In a nutshell, what imprisoned Mary lacks is not a piece of knowledge about a new nonphenomenal fact (anti-physicalism), nor a new phenomenal concept (according to the phenomenal concept strategy), nor a new thing-knowledge by acquaintance. Rather, what she specifically lacks is the perceptual capacity of discriminating and single out particulars nonconceptually. I must confess that my positive view strikes me as little more than common sense; after all, what Mary lacks in her confinement is the capacity of discriminating particular instances of shades of colors. But for the same reason it strikes me as surprising is that no one has ever had such an idea before.

In this paper, I argue for a new solution to Mary's puzzle. We are told that imprisoned Mary knows all facts about color and color vision. On her release, she learns something new according to B-type of materialism and according to property dualism. I argue that this cognitive improvement can only be accounted for in terms of what Schellenberg (2018) has recently called "capacitism," namely the claim that perceptual experience is constitutively a matter of employing perceptual capacities that function to discriminate and single out particulars (2018:53). However, my claim is not affiliated with Lewis and Nemirow's ability hypothesis position. For one thing, the capacity in question is nonconceptual thereby completely different from Lewis's ability of recognition, of imagination and prediction of future behavior (Lewis 1990:516). For another, I am not identifying the phenomenal character of perceptual experience to any know-how.

I take for granted here a sort of property-representationalism, according to which the phenomenal character of experience supervenes on the cluster of properties that the respective experiences represent. On her release, Mary acquires those perceptual abilities on the basis of which she learns to discriminate all shades of color. And after applying her old physical concept RED to the shade of red (that she learns to discriminate), she comes to know what it is like to experience the color red.

The remainder of this paper is structured as follows. In the next section, I present the PCS and Tye's criticisms. There I endorse Tye's general criticisms of the PCS, making only a small caveat in a footnote. In the second section I present and assess Tye's recent suggestion that Mary's cognitive progress takes the form of a thing-knowledge. I argue here that Tye is on the right path, but barking up the wrong tree. In the last section, I present and defend Schellenberg's Capacitism as a solution to Mary's puzzle.

### **The PCS and Its Failure**

The simplest way of regimenting the knowledge argument so that it fits nicely with Jackson's original tale, making it easier to understand the recent criticism of the PCS, has been suggested by Tye as follows:<sup>1</sup>

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<sup>1</sup> Tye 2009: 123-4.

- 1) In her room, Mary knows all the physical facts pertaining to color vision.
- 2) After Mary leaves her room and she sees something red, she comes to know something new (something she cannot know in her room). Therefore,
- 3) After Mary leaves her room, she comes to know a non-physical fact. Therefore,
- 4) Physicalism is false.

Physicalists must deny 4). But there are two classical physicalist reactions to the knowledge argument. The first reaction is to reject the key assumption that Mary makes a cognitive discovery by rejecting premise 2). This is the claim that Dretske, among others, supports. There is no ontological chasm between physical and phenomenal properties because, on her release, Mary makes no cognitive progress about what it is like to experience red in the first place. This reaction to the knowledge argument usually follows from what Chalmers calls type-A materialism.

The other reaction assumes that it is a fact that Mary makes some cognitive progress after she sees a ripe tomato. This is what Chalmers calls type-B materialism. Type-B materialists deny conclusion 4) of the argument: from 1) and 2), it does not follow that there are non-physical facts about phenomenal red. The most popular version is the type-B materialism assumes that Mary's cognitive progress can be accounted for by assuming that she acquires new special phenomenal concepts of what it is like to experience red.

The general structure of the PCS can be briefly represented as follows. Proponents of the PCS argue that phenomenal concepts have a *special nature*. They are not just ordinary concepts used introspectively to pick out the phenomenal character of one's experience; they are special concepts in the sense that one can only acquire them when one undergoes some experience and attends to the phenomenal character of that very experience. The rationale that supports the PCS assumes that it accomplishes two tasks. First, it is supposed to make sense of an epistemic gap between physical and phenomenal properties. To account for this epistemic gap is to explain why we cannot derive a priori phenomenal truths from physical and indexical truths. This inference must be posteriori, that is, based on the experience of red and on its phenomenal character. By attending to the subjective character of her experience of red for the first time, Mary acquires a new phenomenal concept of what it is like to experience red. This is how she finally comes to know what it is like to experience red.

The second task the PCS accomplishes is to close the putative ontological gap between those same properties. Since "what it is like to experience red" is a physical property that is represented by a newly acquired phenomenal concept, Mary's cognitive progress does not entail an ontological chasm between physical and phenomenal properties.

The PCS faces two serious objections. First, according to the PCS, by attending to her new experience of red, Mary acquires a *new* phenomenal concept of the phenomenal character of the experience of red. Yet, assuming that Mary has exhaustive knowledge of all physical facts concerning color and color vision, one cannot see how Mary could acquire *new* information and therefore new phenomenal

concepts about the phenomenal character of the experience of red—information that she did not already possess in her confinement—if *physicalism is true*. If Mary really possesses exhaustive knowledge of all physical facts about color and color vision, then the only way that she can associate *new* properties and therefore new concepts with the experience of red is if these properties are non-physical.<sup>1</sup>

The second key objection assumes that the general concepts we apply via introspection to pick out the phenomenal character of our experiences are *deferential*; that is, they can be possessed even if they are only partially understood. As Tye puts it, “[M]aybe *fully* understanding a general phenomenal concept requires having had the relevant experience; but if such concepts are like most other concepts, possessing them does not require *full* understanding” (Tye 2009:63). Tye’s assumption is that, by contemplating a ripe tomato for the first time, Mary increases her expertise with regard to the color red. She acquires the new ability to discriminate the color red by sight. Thus, *pace* Burge,<sup>2</sup> the concept RED is deferential and can be possessed even when it is only partially understood.

However, demonstrative concepts are never deferential. Could phenomenal concepts not be demonstrative concepts that utilize physical sortals? According to Tye, Mary could also possess this kind of demonstrative concept in her confinement: ‘Under the qualia realist assumption that the phenomenal character of the experience is an intrinsic property of the experience or of the brain, Mary could possess such a demonstrative concept of what it is like to experience red by pointing to a brain image via a cerebroscope. This means not only that she already possessed a demonstrative concept, but also that this concept is not phenomenal in the relevant sense of being a concept whose acquisition hinges crucially on the subject having the relevant experience.

### Knowledge by Acquaintance

However, if the traditional PCS strategy fails because there are no phenomenal concepts in the required sense to explain Mary’s cognitive improvement, one of the remaining options for a type-B materialist is to assume that Mary’s discovery takes the form of knowledge by acquaintance of the phenomenal character of Mary’s new experience of red. Qualia realists suggest a kind of introspective knowledge by acquaintance with the phenomenal character. Mary would turn her mind inwards and would then pick out the phenomenal redness of her new experience. To my knowledge, Conee was the first who came up with this suggestion. More recently, Balog<sup>4</sup> also came up with the same idea with a revival of Russell’s notion of knowledge by acquaintance: what fixes the reference and meaning of those phenomenal concepts is an introspective knowledge by acquaintance of those mental states with their phenomenal character. As Balog puts it, a person possesses a phenomenal concept “when she is acquainted with her own conscious states in introspection” (2012: 1).

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1 Tye 2009: 128.

2 See Burge 2003: 413–414.

3 See Tye 2003, 2009.

4 See Conee 1994 and Balog 2012.

Alternatively, Tye suggests that what accounts for Mary's cognitive progress is not an introspective knowledge by acquaintance with the phenomenal red, but rather knowledge by acquaintance with the color red (or a trope of it) of a ripe tomato that her visual experience *represents*.<sup>1</sup> According to Tye, Jackson's knowledge argument relies on the false assumption that all worldly knowledge is propositional or knowledge *that*.<sup>2</sup> Thus, on her release, Mary acquires a *thing-knowledge* of the phenomenal red of which she already knows many truths.

Notoriously, there is barely any agreement on how to understand the acquaintance relation. Russell defined "knowledge by acquaintance" as follows: "I say that I am acquainted with an object when I have a direct cognitive relation to that object, i.e. when I am directly aware of the object itself" (1912: 108). Russell contrasts knowledge by acquaintance with propositional knowledge or knowledge of truths. Thus, knowledge by acquaintance is a sort of objectual knowledge ("thing-knowledge") rather than knowledge of truths of propositions ("knowledge-that", "knowledge of what", "knowledge of which"). The idea is that acquaintance is a kind of knowledge that is simpler than, prior to, and logically independent from knowledge by description or knowledge of truths.

However, if we define acquaintance purely in the epistemic terms of putting someone in direct contact with something, acquaintance becomes a primitive notion in the relevant sense of being a notion that cannot be further explained. Someone might object to this that such primitive acquaintance is completely mysterious; what would it mean to claim that, on her release, Mary got acquainted with the color red that her new experience represents? Russell's view of knowledge by acquaintance in terms of being "directly aware" naturally suggests that he had some kind of perceptual relation in mind, and some philosophers have interpreted acquaintance that way. Tye is one of them. According to him, acquaintance must be understood as direct perceptual contact with the things being experienced. Let us take a look at what he has to say about his uses of "acquaintance:"

My general suggestion in the earlier discussion was that I am conscious of a given entity only if my conscious state is so situated that it enables me to ask "What is that?" with respect to that entity (and it does so solely on the basis of its phenomenology). In the case of the crayon mark, then, since my experience does not enable me directly to ask "What is that?" I am not conscious of it. (2009:100)

My notion of acquaintance can be illustrated by example. I am acquainted with the color red, the city of Athens, the Apple computer at which I am now typing, the feeling of pain, the urge to gamble a large sum of money, and the feeling of jealousy. I have encountered (or am now encountering) all these things in experience. Where I have not encountered a thing in experience, as is the case with the city of Istanbul and the shape of a chiliagon, I am not acquainted with it in the relevant sense of 'acquaintance'. (2009:101)

The idea is that one can only be acquainted with things only if one's conscious state is so situated that it enables one to wonder: "What is that?" In other words, knowledge by acquaintance requires the ability to have *de re* mental states about the relevant object. In the remainder of this section, I argue that Tye's opposition

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1 See Tye 2009: 96; 2012.

2 See Tye 2009: 131.

between knowing facts/truths and knowing things is not the key to a physicalist solution to Mary's Puzzle.

To start with, no one seems to give importance to the fact that Jackson describes Mary's predicament in contrast to Fred's. While Mary is an ingenious neuroscientist, Fred is someone that has better color vision than anyone else.<sup>1</sup> Now, let us suppose, additionally, that despite his extraordinary color vision, Fred also has a significant cognitive deficit: his long-term memory systems for colors do not work properly, so he can never conceptualize even the color red that he can easily discriminate from other colors better than anyone else. Though he tries, he can never retain the memory of the most common shade of red, for example, Ferrari red. Omniscient Mary possesses exhaustive knowledge about color and color vision but not the ability to discriminate the color red from others (lack of nonconceptual representation of colors).

Yet, Fred is better than anyone else at discriminating the color red from others and from its background but does not possess the minimum understanding that red is the color he is seeing and that the subjective character of the experience he is undergoing is what it is like to see red (lack of conceptual representation). However, even being cognitively incapacitated to form a demonstrative concept of *that shade of red*, Fred has the amazing ability to represent *that shade of red nonconceptually* insofar as he can discriminate that specific shade better than anyone else. Fred's predicament, in opposition to Mary's, suggests that what is at stake in Jackson's argument is the opposition between conceptual and nonconceptual discriminatory capacities of the same color red rather than the opposition between thing- and propositional knowledge of facts.

However, discriminatory capacities and knowledge by acquaintance usually comes in the same package. According to Tye:

What needs to be appreciated is that knowledge by acquaintance of an entity is a kind of non-conceptual, non-propositional thing knowledge. I know the shade red<sup>29</sup> simply by being directly acquainted with it via my consciousness of it. (2009:136)

Now, the reader may wonder what is the big deal in claiming that what makes the difference is Mary's acquisition of a new nonconceptual discriminatory capacity of the color red rather than Mary's getting acquainted with the same color. First, *de re* knowledge of acquaintance requires conceptual abilities; otherwise one cannot wonder "what is this" by contemplating something. Tye is quite explicit about this:

One general worry that might be raised for the overall position I am adopting is that it leaves no room for animals to see things, *for seeing something, on my proposal, requires consciousness of it, and that requires the capacity to wonder about it or to form other de re conceptual attitudes about it*. Many non-human animals lack concepts, so they cannot form such attitudes. It follows, on my account, that such animals do not see things. And that is absurd.

To the extent that it is agreed that such attitudes require concepts, Quigley has concepts. To be sure, Quigley does not have the concept bone, for he cannot draw any distinction between bones and fool's bones. Thus, Quigley's concepts need not be the same as ours. Nor is this needed for us to correctly ascribe attitudes to

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<sup>1</sup>See Jackson 1982: 127.

Quigley using concepts he lacks. It suffices for such ascriptions to be true that Quigley's concepts be sufficiently like ours. *Furthermore, for Quigley to wonder where that is, where that is the bone, his conceptual resources can be slim indeed.* (2009:102. Emphasis added)

In contrast, nonconceptual discriminatory capacities require no concept whatsoever. Now, let us assume for the sake of argument that the phenomenal red is identical with some brain state P in the same way that Paderewski, the talent pianist, and Paderewski, the politician are one and the same person. Now, as a matter of pure logic, if you became acquainted with Paderewski in a concert hall or making a political speech at the rally, in Tye's sense of acquaintance you are acquainted with the same particular. Likewise, if you are acquainted with the color red by staring a ripe tomato in the plain sight or if you are acquainted with P by contemplating a brain image via a cerebroscope, as a matter of pure logic, you are acquainted with the instantiation of the very same property, provided physicalism is true.

Given this, if we follow Tye's assumption that Mary could possess a demonstrative concept of what it is like to experience red via a cerebroscope, we must assume in addition that in her confinement she has already a thing-knowledge by acquaintance of the phenomenal red. To be sure, acquaintance with the red<sub>29</sub> does not require a demonstrative concept of that red<sub>29</sub>. But a demonstrative concept of *that red<sub>2</sub>* requires acquaintance with red<sub>29</sub>. Without acquaintance with red<sub>29</sub>, we may have a concept RED<sub>29</sub>, but certainly not a demonstrative one. Given this, by pointing to the brain image via a cerebroscope she might wonder: "What is that?" we must assume that she has a *de re* consciousness of phenomenal red. Thus, either Tye gives up his previous claim that Mary in her confinement could already possess a demonstrative concept of that red<sub>29</sub>, *because a demonstrative concept of that red<sub>2</sub> requires acquaintance with red<sub>29</sub>*, or he must give up his claim that acquaintance with red<sub>29</sub> is what is making all the difference.

Someone might retort in defense of Tye's account that acquaintance with a brain image via a cerebroscope is not what Tye means by his technical notion of acquaintance. In her confinement, Mary's contact with the phenomenal red is mediated through the cerebroscope, someone might claim. Still, that mediation is not epistemic, but purely causal! There is no inference involved, no knowledge of truths involved.

But to eliminate once for all the suspicion of epistemic mediation, let us alternatively assume that Mary is examining the brain tissue of someone alive who is contemplating the color red. By contemplating directly the brain tissue, she might wonder: "What is that?" In that case, if we are physicalists (in this case qualia realists), there is no way to deny that Mary is *de re* conscious of the phenomenal redness.

Yet, someone might insist that acquaintance with the brain tissue is not acquaintance with phenomenal red! However, if we assume that acquaintance with phenomenal red comes apart from acquaintance with the respective brain state, we cannot hold the physicalism type B anymore. Even worse, we must assume that acquaintance with phenomenal red is nothing but acquaintance with some Russellian sense data.



I believe that those simple arguments make clear enough that the appeal to thing-knowledge is not a solution to Mary's puzzle. What Mary lacks is not a thing-knowledge by acquaintance of the phenomenal redness she supposedly never had before. What she lacks is the discriminatory capacity of colors. Tye is on the right path, but barking up the wrong tree.

### Capacitism

I wish to show that Mary's cognitive improvement can only be accounted for on the basis of what Schellenberg has recently called "capacitism" (2018), namely the claim that perceptual experience is constitutively a matter of discriminating and singling out particulars by employing perceptual capacities. But what are perceptual capacities?

What are perceptual capacities? A perceptual capacity is a kind of discriminatory, selective capacity that we employ in perception, hallucination, or illusion. A discriminatory, selective capacity is a low-level mental capacity that functions to differentiate, single out, and in some cases classify particulars of a specific type. *While discriminating particulars can include classification, it does not require classification.* (Schellenberg 2018:54, emphasis added)

Let us return to Jackson's paper. The first thing that I want to suggest is that the opposition between Mary's and Fred's predicaments is at best captured by the opposition between nonconceptual discriminatory capacities and conceptual representations. Let us consider Fred's predicament. With his fantastic color vision, Fred is able to discriminate the color red from other colors better than anyone else. Moreover, he is also able to discriminate all possible shades of red better than anyone else. Still, as he can retain nothing in his memory, he is never able to consider any state of his brain as a token of the conceptual type RED. And what about Mary? The ingenious Mary might have known *all facts* about color and color vision in the sense that she possesses all possible kinds of concepts thereof. Yet, she can still learn something new about the phenomenal red insofar as, on her release, she acquires a discriminatory capacity in relation to colors. She learns how to discriminate the color red from its surroundings and from the other colors

Now we can explain the epistemic gap and close the ontological gap. Imprisoned Mary has only conceptual representations of colors and color vision, that is, only information coded in digital form. On her release she acquires new representations of the same things, but now in a nonconceptual way, that is, as a discriminatory capacity. Assuming this, there is no ontological chasm between physical and phenomenal realms, but only different ways of representing the same reality. Yet, there is in fact an epistemological gap since imprisonment Mary could never exercise her innate discriminatory capacities in relation to colors.

I would like to finish this paper by indicating the superiority of my account over the rivals (inference to the best explanation). First, against the anti-physicalist view, my account eliminates all the reasons contained in the knowledge argument to believe that the phenomenal character of experience is irreducible to physical properties. For one thing, both via her old concepts and via her newly acquired nonconceptual discriminatory abilities, Mary is representing the same reality, albeit differently.

My account can also overcome the problem raised by the PCS. To be sure, if almost every concept is deferential (Tye) and if Mary could possess demonstrative concepts in her confinement, there is no such thing as phenomenal concepts in the proper relevant sense, that is, concepts about the phenomenal character of experience that we could only acquire by undergoing the relevant experience. Still, discriminatory capacities are not conceptual at all and it makes little sense to suppose that those capacities could be acquired without experience.

Finally, my account can also overcome the problem faced by Tye's last account of Mary's cognitive progress in terms of thing-knowledge. As I have argued, if Mary could possess demonstrative concepts in her confinement, there is no reason to deny that Mary could also possess a thing-knowledge by acquaintance of the phenomenal red: by pointing to a brain image via a cerebroscope, Mary could wonder: "what is that?" Yet, even so, Mary could never possess the capacity of discriminating the color red and of the phenomenal red without experiencing red. Mary makes a cognitive progress can easily be accounted as follows: knowing that ripe apples are red, by means of her old nonphenomenal concept RED Mary conceptualizes her newly acquired nonconceptual representation of red.

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