

QUALIA AND MEANING : CRITIQUE TO PAUL CHURCHLAND

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Abstract

In *Scientific Realism and the Plasticity of Mind* (1979), Paul Churchland defends semantic holism through a series of arguments and thought-experiments with which he seeks to prove that the intrinsic qualitative identity of sensation or qualia, have no semantic significance at all. He argues that the meaning of terms used to describe sensations is not related to the sensation itself, but that the network of sentences in which they are contained is what determines their position in semantic space. The thought-experiments with which he seeks to develop his thesis are based on a series of both linguistic and epistemic assumptions which we argue need to be questioned. In developing Churchland's thought-experiment we reject his claim the qualia has nothing to do with the semantic of sense terms.

Upon examination, the radical reductionist program of the mind and body defended by Paul Churchland has as one of its most important aspects, a holist theory of meaning. The idea is that the mere observations constituting the empirical basis for any other theory, including “common sense theories”, give rise to terms whose significance is entirely dependent (that is, only and exclusively) on the “network of sentences” of the theory in question. This would be valid, according to Churchland, “(...) even [for] the simplest of our observation predicates (...)” (PM 13),¹ that is, for the terms used to describe sensations. This is important because, just as postulated by Churchland, it takes us to the problem of *qualia*. These are seen by Churchland as merely terms that belong to “folk psychology.” The semantic holism which Churchland embraces, reasons that the meaning of the terms used to describe sensations such as “hot”, “red”, etc., are not related in any way to the sensation itself. Rather, “their position in semantic space appears to be determined by the network of sentences containing them (...)” (PM 11). Churchland seeks to exploit this idea in his radical reductionist program, which he terms “*eliminative materialism*” (PM 5)². This holism (reducing the meaning of the terms used to describe sensations to the network of sentences in which they are used) serves as starting point from which Churchland claims that “folk psychology” can be entirely *replaced* by a scientific theory. This sufficiently developed neuroscience would include sentences in which the terms used to describe sensations (*qualia*) would be replaced by

¹The list of abbreviations can be found at the end of this work.

² Italics inside of a quote are ours unless specified otherwise through the abbreviation a.i. (author's italics).

scientific terms. In essence, “folk psychology” can be *eliminated* without a trace by a scientific theory, due to the fact that *qualia* do not play a part in the meaning of sentences given by this theory. However, the reasoning against Churchland is that if *qualia* were something irreducible (they were in fact part of the meaning of the corresponding terms), then there would be no hope of eliminating “folk psychology” and substituting it with a sufficiently developed neurophysiology or neuroscience. In this work we do not take sides regarding the problem of the elimination of “folk psychology” – the Churchland version of the thesis of the mind-body reduction. Instead, we limit ourselves to questioning the thesis that *qualia* have nothing to do with the meaning of the terms used to describe sensation and their corresponding sentences.

A thought experiment

The theory which we will question here is that same one defended by Paul Churchland along with his wife, Mrs. Patricia Churchland; however, the key texts in which they defend this theory refer to Paul Churchland’s *Scientific Realism and the Plasticity of Mind* (1979). For this reason we will also refer to this text.³ In essence, the theory in question⁴ is based on an ingenious and interesting thought-experiment. Our critical arguments follow the thread of said experiment and variations inspired there-upon.

The experiment assumes the existence of a race of men, similar to our own, but differing in two important ways. Firstly, they can *visually* perceive middle-range temperatures of objects – their eyes permit this due to the fact that their “(...) retinas consist solely of rods sensitive to electromagnetic radiation at some wavelength in the far infrared.” (PM 8) For this reason Churchland calls them our “infrared cousins.” (PM 10) The second physiological difference is that “(...) these beings lack any tactile or bodily sense of temperature, just as we lack any tactile or bodily sense of colour.” (PM 8) In other words, our infrared cousins have no possibility of perceiving temperature other than visually. Given these physiological differences, what to us is *presumably* – as we will see below – a hot object, to them is a grey-white object; what to us is a cold object, to them is a dark grey object.

The assumption of the physiological closeness between those beings and us enables Churchland to formulate the additional assumption – central to the conclusions which he is interested in drawing – that said beings have a language indistinguishable from English, save

³ References Mrs. Churchland makes to the text just mentioned can be found in N 307, 344.

⁴ Detailed by Paul Churchland in chapter two of his text

for two points. First, that it completely lacks our colour vocabulary including “black”, “grey” and “white” (cf. PM 8) and, second, that “(...) our ordinary temperature vocabulary (that is, of common sense) is learned by the very young as an observation vocabulary for *visual* instead of tactile reports” (PM 8, a.i.)⁵. It is also apparent that if our “infrared cousins” have no chromatic vocabulary, their language will lack all sentences related to the chromatic dimension of experience.

Churchland *develops* this important assumption that our infrared cousins speak of temperature as we do. That is to say that our infrared cousins develop our “usual set of general beliefs or assumptions concerning temperature” (PM 8) from their “visual (...) [temperature] (...) reports” (PM 8). In this way, our “infrared cousins’ *visual* temperature beliefs” (PM 9) correspond to our tactile temperature beliefs, with the exception of sentences that have to do with their belief that “temperatures can be seen” and our belief that “temperatures can be felt” (cf. PM 9). Apart from this exception, their beliefs are indistinguishable from ours. For this reason we find sentences in their language such as “Fires are hot”, “A warm thing will warm up a cooler thing, but never the reverse” and the belief that “Food keeps better in a cold place”, etc. (cf. PM 8)

Before continuing it is important to point out two important facts about Churchland’s linguistic assumptions. First, Churchland implies that not only our “*general* beliefs or assumptions about temperature”, but also “our observational beliefs” (PM 11), (that is, our “*singular* empirical judgements” (PM 11) about temperature, or “perceptual reports on temperature” (PM 9)) are basically indistinguishable from our infrared cousins’. Churchland’s second and most important given assumption is that the thought-experiment concerning the languages is not problematic at all. In other words, Churchland does not question if it is possible or how it is possible to make the assumption that “*our* beliefs, background and observational” (PM 11 a.i.) and our cousin’s would coincide. Churchland does not see any difficulties here because his point of departure is the “accuracy *de facto* of their perceptual reports on temperature” (PM 9) as well as the “accuracy *de facto*” of ours. In other words, the assumption about the coincidence of the two languages, including the great majority of “ordinary” sentences (that is, common sense sentences about temperature) is not merely a linguistic assumption, it is also an *epistemic* assumption, and it is important to bear this in mind.

⁵ Due to the fact that in this quote the author of the text, P. Churchland, uses italics, we emphasized what interests us underlining it.

Let us get back to the thought-experiment.

An object which is hot to us is a white object to our infrared cousins. Through physics theory, we can say that it is an object with a relatively high mean molecular kinetic energy. This is perceived in two different sensory modalities: they perceive it in a visual modality while we perceive it in a haptic or tactile one. This encapsulates the asymmetric idea that we do not perceive temperature visually but tactilely while they do not perceive it tactilely but visually. According to physics, what both species perceive is mean kinetic energy. Nonetheless, we can assume, that the “intrinsic qualities” (PM 9) are completely different in each case, as would correspond to the fact that we use different perceptive modalities. In a strict sense, this last argument is obviously a mere assumption, due to the fact that we will never be able to access our infrared cousins’ perceptual modality. In fact, Churchland points out that we do not have “any information concerning the intrinsic qualities of their visual sensations.” (PM 9) Nevertheless, this does not affect the development of Churchland’s arguments in any way, for in his semantic theory – as we will see – the “intrinsic qualitative identity of these sensations (...)” (PM 11) has absolutely no relation to the meaning of the terms used to describe the sensations.

Neither the linguistic problem nor its semantic dimension has played a role in the experiment up until this point. Let us introduce this factor. Our infrared cousins use our terms and in sentences that are, generally, the same as ours. Now, the way of talking about what we know the mean molecular kinetic energy to be is the same, even if the way of perceiving (said energy) is completely different. This – according to what we have discussed above, we can call the *linguistic epistemic assumption* of the thought-experiment – is precisely the reason for which the meaning to Churchland, of the terms used to describe sensations is independent from the “intrinsic qualities (...) [of them]” (PM 9), that is, of *qualia*.⁶ Put another way, given that “our beliefs, background and observational” (PM 11) about temperature are *de facto* as “precise” as our infrared cousins’ – reason for which the corresponding sentences are indistinguishable from one another – it would follow, according to Churchland’s emphatic formulation, that “(...) the meaning of the relevant observation terms has nothing to do with the intrinsic qualitative identity of whatever sensations just happen to prompt their non-inferential application in singular empirical judgements.” (PM 11) Nor, obviously, with the background beliefs that are derived from such judgements, for example, that “a warm body

⁶ Up to this point it should be clear to the reader that Churchland uses multiple equivalent expressions but avoids the term *qualia*. Among the expressions he uses are “intrinsic qualities” of sensations (PM 9), “intrinsic nature” of sensations (PM 9) and “intrinsic qualitative identity” of sensations (PM 11).

warms a cold one.” This is why, even though the application of the term “warm”, according to Churchland, is “provoked” (PM 11, 12), under the same circumstances, by a visual sensation in our infrared cousins and by a tactile sensation in us, the resulting sentences are still the same for both of us.

Churchland argues in favour of this conclusion making (as we did above) the additional assumption that, the “qualitative identity of sensations” – the respective *quale* – is in both cases completely different. Even though we really do not know, this is, as Churchland says, “(...) the result to be expected” (PM 9). In fact, to be more precise, (...) since (a) their retinas contain only rods, and (b) we are supposing their physiology to be entirely human other than the peripheral aspects cited (...)” (PM 9), what is “expected” is that “(...) the world ‘looks’ to them much as it looks to us in black-and-white prints of pictures taken with infrared film.” (PM 9)

Following the assumption we have just discussed, Churchland argues in favour of his semantic conclusion regarding the terms used to describe sensation, demonstrating the absurdity of a “heterophonic sensation-guided translation” (PM 10). This would entail that the terms ‘hot’, ‘warm’, and ‘cold’, as articulated by our infrared cousins, really mean ‘white’, ‘grey’, and ‘black’, given that they see temperature in greyscale. A relatively high temperature makes them see something whitish and if, as Churchland reasons, the meaning of their term “hot” were “given in sensation” (PM 10), then they would be referring to the experience of perceiving something whitish and not something hot. Thus, the translation of “white” would be the heterophonic of their term “hot”. If this were true, then the sentence “a warmer body warms a cold one” would have to be translated as “a white body whitens a black one”, and the sentence “Food keeps better in cold places” would have to be translated as “Food keeps better in black places”, etc. That is to say that their temperature “background beliefs” (PM 10) would have to be judged by us as “false” (PM 10). And the same would apply to “all of their temperature “observation” judgements” (PM 10) – save for the exceptional cases, in which an object was, for example, white and hot at the same time –.

Nonetheless, because the way in which they see temperature and what they say about it is correct according to our own experience, the “heterophonic sensation-guided translation” has to be rejected. This, according to Churchland, shows that sensations have nothing to do with the meaning of the terms whose application they “provoke”. It follows that the “homophonic translation” (PM 11) is the right one, in spite of the supposed heterogeneity of the “intrinsic qualitative identity” (PM 11) of their sensations and ours. The holist conclusion

seems to be at hand: if the “(...) meaning of simple observation terms is [not] given in sensation (...)” (PM 10), then “the meaning of common observation terms like “hot” and “cold” is determined by the cluster of beliefs and assumptions in which they figure (...)” (PM 21) Or put another way, “(...) their position in semantic space appears to be determined by the network of sentences containing them accepted by the speaker who uses them.” (PM 11, 12)⁷ The only thing that sensations do, concludes Churchland, is “*prompt* their [of the terms used to describe sensations] non-inferential application in *singular* empirical judgements.” (PM 11) All this poses certain problems for a holist theory of the meaning of simple observation terms. Let us look at one of the more serious ones.

Continuation of the thought experiment

Let's examine the sentence which reads: “a warmer body warms a cold one”. This sentence is a “background belief” shared by both our infrared cousins and ourselves. Said generalization is the implicit assumption of the expression “come close to me because you are warm”. Nonetheless, given that our infrared cousins do not feel heat but only see it and, other than this, have the same physiology as ourselves, this last sentence can only make sense for them in extreme conditions. For example, in the peculiar case where the one uttering it were close to hypothermia and required a higher temperature to survive and he were aware of it. Another example, this time concerning distance rather than proximity, would be the case in which one of us wanted to get away from a radioactive source. Assuming that said person knew about the effects of radioactivity on the human body, he would try to get away from the radioactive source even if he is not able to feel its presence. In both cases (the demand for closeness of our infrared cousin and the human's attempt to distance himself) there are no sensations but only theoretical knowledge of the effects of a given situation. In both cases there is no interest in achieving a sensorial state which is different than the present one: neither entity is interested in achieving or maintaining a determined sensorial state. In each case the “intrinsic qualitative identity” of sensations doesn't matter because there is simply no corresponding sensation. There is a physical cause and a physiological effect of radiation, but both the stimulus and the corresponding sensation are missing. The cause (temperature, radiation)

⁷ For the sake of completeness of this examination, we want to point out here that, strictly considering that the sentences themselves (their quality) has nothing to do with the meaning of the terms that designate them, does not automatically imply that the meaning is given by the network of sentences in which said terms are used; there could still be a mentalist explanation of meaning, in that sense that, for example, Frege conceives meaning.

never becomes a stimulus itself; it only has an effect, of which we can only have theoretical notice before suffering it.

It then turns out that the sentence uttered by our hypothermia-endangered infrared cousin “come close to me because you are warm” would make no reference to sensation but only to possible unwanted physiological effects of the cooling of the body – including death – and, maybe, to some other possible sensations – such as numbness – but no temperature-related sensation. In this case then, the thermal *quale* as such does not form part of the meaning of the sentence. It cannot make any reference to it because said *quale* simply does not exist for our infrared cousin. Leaving aside an extreme case such as this, in which possible theoretically known effects become important, the sentence in question would have absolutely no significance to our infrared cousins. In all cases of feeling cold – an impossible condition for our infrared cousins – the sentence “come closer to me because you are warm” would make sense to us because it refers precisely to our thermal *qualia*.⁸ In other words, the sentence “a warm body warms a cold one” as an explicative element of the sentence “come close to me because you are warm” means something different to our infrared cousins than it does to us because in this relationship, the sentence “a warm body warms a cold one” refers to our *qualia*. This, following Churchland’s expression (cf. PM 10), “gives” part of the meaning. In fact, the part of the meaning they give is the really interesting part. Take the situation in which a person that felt cold approached another whom he (or she) thought was warm but instead of saying “come close to me because you are warm”, said “a warm body warms a cold one”. In this case the latter sentence would just mean “come closer to me because you are warm” and in its qualitative sense this sentence is completely incomprehensible to our infrared cousins even in extreme cases such as the one discussed above concerning hypothermia. Let us be a little more precise.

What this previous reasoning involves are two chains of sentences. On the one hand, the situation applicable to us – Situation 1:

A warm body warms a cold one.

You are warm.

If you come close to me you will warm me.

I want to *feel* bodily warmth, therefore come close to me.

⁸ Note that in the quotes by Churchland cited until now he never speaks of the reference to an observation term but only of that which “provokes” its application (cf. PM 11, 12, 13, 15). Churchland obviously wants to avoid compromising with a referential theory of meaning because it is excluded from a holist position.

And on the other hand, the situation that applies to our infrared cousins – Situation 2:

A warm body warms a cold one.

You are warm.

If you come close to me you will warm me.

I want to *receive* warmth in order not to die of hypothermia, so come close to me.

Additionally we would also have a Situation 3:

High radioactivity is deadly.

There is high radioactivity here.

If I leave I will not die (as a consequence of radioactive contamination).

I want to leave (in order not to die as a consequence of radioactive contamination).

In these two last cases no reference is made to the *qualia*. And precisely because in the first situation a reference is made to a *quale*, unknown to our infrared cousins, they can only have an indirect idea of the meaning of the sentence. In the second and third situations there is a *relative* interest (to prevent death). In the second situation specifically, there is a reference to heat as a *means* to prevent death, whereas in the first there is a reference to heat as an *end* in itself. This absolute character of the reference to heat – the *absolute* interest in heat – is determined by its “intrinsic qualitative identity”. This is what gives the meaning the sentence has to us and cannot possibly give in any way to our infrared cousins. In other words, even if in situations 1 and 2, the first three sentences are identical, the fourth (“I want to feel heat”, and “I want to receive heat” respectively) implies a different semantic moment, such that the semantic moment of the first situation is inaccessible to our infrared cousins. This does not mean that they do not understand “I want to feel heat” for they do, but not in the same way as us due to the fact that they cannot feel heat.

Similarly, the sentence “I see a warmer body” would mean something quite different to our infrared cousins than it does to us. To them it would imply a direct experience with a specific qualitative identity, whereas to us it would mean a certain indirect experience, such as that obtained if the bodies in question had a thermometer, someone indicated to us which of them is the colder body, or if we touched them and had a direct experience of their heat

through the tactile modality. In such a case, the sentence would mean that I am touching a body or that I have just touched it and report that I can also see said warm body.

According to the above it is clear that the sentence “a warmer body warms a cold one” does not have to mean the same to our infrared cousins as it means to us precisely because in certain situations – especially regarding common sense – what interests is precisely the *qualia*: these “give”, as Mrs. Churchland says, “at least part” of the meaning to certain sentences (cf. N 307, PM 12). The sentence “a warm body warms a cold one” explicitly formulated would rarely appear in common sense – not even in the version “a warm thing warms a cold thing” –. It would be more usual to say (a) “the mother warms the child”, (b) “the dog warms the puppy”, (c) “place the water in the heat”, or sentences of the sort. All of these imply the generalization that “something warm warms something cold”, but the thermal common-sense sentences are divided in two types depending on whether *qualia* are of interest (a, b) or not (c). Even the sentence “place the water in the heat” can have two meanings depending on if the water will be used to boil meat or if it is only to be warmed for someone to take a bath. In the latter case the matter is the *quale* of heat and as before, the meaning of the sentence “I want to bath with warm water” is different to our infrared cousins and us. We can say that our infrared cousins would only have the indirect or theoretical part of sentences such as “come closer to me because you are warm” and “I want to bathe in warm water”. The qualitative subjective part would escape them completely due to the fact that it is not “determined” by any “cluster of beliefs” (PM 21) or “assumptions” (PM 21), nor by any “network of sentences” (PM 11).

Returning to situations 1 and 2 it is clear that Churchland can argue that only the syllogism qualifies as a set of beliefs and that his exposition refers to the fact that the meaning of terms such as “warm” is determined by this type of sentences. The fourth sentence of both situations does not belong to this type. The question for Churchland would be the following: Does the meaning of the term “warm” have in fact no relation to the fourth sentence? Certainly, the discussion about the semantics of sentences such as the fourth sentence of the three situations given is far from being resolved. But it would be absurd to claim that in the fourth sentence of situation 1 the meaning of the term “warm” has nothing to do with the meaning of terms such as “warm”, “warmth” and “to warm” in the sentences of the corresponding syllogism; it would be absurd simply because the fourth sentence together with its subordinate sentences (“therefore come closer to me”) can only be understood with the syllogism. Notwithstanding, it is clear that in situation 1 the fourth sentence includes a

semantic moment with respect to the term “heat” that goes beyond the meaning of the terms “warm”, “warmth” and “to warm” in the syllogism *observed in situation 2*. In other words, the heat *quale* in situation 1 “gives” “at least part of the meaning” of the term “warm” used in the syllogism of situation 1 but not in the syllogism of situation 2. We can say that the “semantic space” or network of sentences in situation 1 presents us with a semantic moment, in Churchland’s words, “given in sensation” (PM 10) which is not present in situation 2 precisely because in it the sensation in question is not present.

Conclusion

What we have stated above is enough to demonstrate that the semantic holism assumed by Churchland in respect to the most “simple observation terms” does not hold: it is not true that the meaning of said terms “has nothing to do” with the corresponding sensations and that is only “(...) determined by the cluster of beliefs and assumptions in which they figure (...)” (PM 21). Obviously, if semantic holism does not hold here, it is not clear how it could hold in general. At the margin of the mind-body problem and its “materialist elimination” as well as the replacement of “folk psychology” by a sufficiently developed “neurobiology”, (the) *qualia* question the semantic holism proposed by the Churchland.

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Bibliography and Abbreviations

N = Churchland, Patricia Smith (1989). *Neurophilosophy. Toward a Unified Science of the Mind/Brain*. Cambridge: MIT Press.

PM = Churchland, Paul M. (1979). *Scientific Realism and the Plasticity of Mind*. Cambridge: Cambridge University Press.