2 Plato on the Ontological Status of Colours

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Contemporary scholars commenting on Plato's views about what colours are and how they are perceived usually focus on a long passage in his dialogue *Timaeus*, namely, 67c4–68d7.[1] I myself did the same in my 2005 article, arguing that Plato offers in this passage "a systematic and detailed account"; as to the scattered remarks Plato elsewhere makes with regard to colours and colour vision, I claimed that they are "few and not always informative".[2] I stand firm in my belief that the *Timaeus* passage represents the main bulk of the Platonic theory of colours, but I also acknowledge the importance of comparing what we find in the *Timaeus* with Plato's relevant passages in his dialogue *Theaetetus*, especially since the remarks on colours in the two dialogues seem to differ considerably. For the *Timaeus* theory has standardly been interpreted as a realist position on the ontological status of colours, whereas in the discussion between Socrates and the young Theaetetus colours are treated as an example that is meant to illustrate Protagoras' relativist perspective.

The differences between the realist colour theory in the *Timaeus* and the relativist doctrine in the *Theaetetus* are the central topic of this chapter. But instead of getting muddled by the numerous and often ill-defined -isms with which we tend to label ancient theories of colours, it is important to study carefully what Plato himself has to say about colours in the two dialogues. And since I have previously analysed the *Timaeus* passage, I will here concentrate principally on the *Theaetetus*, in order to inquire into the alleged inconsistency between the two Platonic accounts of colours.

Let me first summarise what I take to be the *Timaeus* theory, although the fact that I start from the *Timaeus* does not imply that I consider it to be an earlier dialogue than the *Theaetetus*. Indeed, the issue of the relative chronology of these dialogues has been much debated, but I do not think that it crucially affects our attempt to understand Plato's views about colours.[3] For my contention is, briefly stated, that the *Theaetetus* account of colours does not reflect Plato's position, even though it is Plato himself who constructs it by using from his own theory certain elements, which he aptly adjusts to the metaphysical presuppositions of previous philosophers presented in this dialogue. Thus, if we manage to successfully show that these two dialogues do not both describe the

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Platonic theory of colours in its entirety, it becomes insignificant, for our purposes, whether the *Timaeus* passage is earlier or later than the relevant passages in the *Theaetetus*, since no change of mind on Plato's part would be at stake in this regard. As to the common features between the two dialogues, it may be the case that Plato borrows them in the *Theaetetus* from the *Timaeus*, if the *Timaeus* precedes the *Theaetetus*; or, more likely, it may be the case that the *Theaetetus* account foreshadows the *Timaeus* articulate theory, which Plato seems to have anticipated even before the actual writing of this dialogue.[4]

2.1 *Timaeus* and *Theaetetus*: The Colour Passages

According to the *Timaeus*, an object has a certain colour because it emits a flame, i.e. a stream of fire-particles of a certain kind:

> **[T1]** [Colour is] a flame (*floga*) emitted by each kind of object, having its particles commensurate (*summetra*) with the visual stream (*opsei*) so as to produce perception.[5]

That is to say, what makes an object have the colour it has is due, in Plato's view, to the fact that it emits fire-particles of a certain kind, whether it is perceived or not. But for a colour to be actually perceived, Plato tells us that the fire-particles emitted by an object need to be commensurate with the visual stream, i.e. the stream of fire-particles that emanates from the eyes and coalesces with daylight in such a way as to form together a single homogeneous body (*Timaeus* 45b2–d3). So, Plato defines his four basic colours – white (*leukon*), black (*melan*), bright (*lampron*) or brilliant (*stilbon*), and red (*eruthron*) – in terms of the size of fire-particles emitted by an object (67d–68b5): White objects are those emitting fire-particles smaller than those of the visual stream; being smaller, these fire-particles divide the fire-particles of the visual stream. Black objects, on the other hand, are those emitting fire-particles larger than those of the visual stream; being larger, these fire-particles compress the fire-particles of the visual stream. And he also describes a similar procedure for the generation of the other two basic colours, whose details we will examine later on. What is important to stress, at this point, is that colours are regarded in the *Timaeus* as perception-independent, and thus as perfectly real and objective.[6]

Next, we need to study the passages in the *Theaetetus* in which Plato mentions colours and colour vision. We should keep in mind, however, that this dialogue does not thematise the ontology and perception of colours the way the *Timaeus* does. For Plato talks about colours, in the first part of the *Theaetetus*, only in order to exemplify a certain theory of perception that is presented as a possible candidate for the definition of knowledge. More specifically, he deals with the nature of colours in the context of Socrates' presentation of what he refers to as Protagoras' "Secret Doctrine" (*en aporrêtôi:*

Theaetetus 152c10). Needless to say, the secondary literature on this part of the dialogue is extensive and daunting. Many contemporary scholars have commented on it and raised puzzling and interesting issues; for instance, how Theaetetus' definition of knowledge as perception is supposed to relate to Protagoras' views, whether Protagoreanism actually implies Heraclitus' theory of flux, and if Protagoras' doctrine is rightly labelled "relativism", "subjectivism", "infallibilism", "perspectivism", or "perceptual privatism".[7] Since my task is merely to compare the *Theaetetus* account of colours with that in the *Timaeus*, I will not engage in discussing these issues, significant though they may be for the overall interpretation of this Platonic dialogue; instead, I intend to focus on whether Plato can be said to adhere to the *Theaetetus* theory of perception, in general, and to the ensuing ontology of colours, in particular.

Presented in a nutshell, Protagoras' Secret Doctrine postulates that colours are not properties that characterise the objects in themselves, since they are produced by the interaction of the perceived objects and the perceiving eyes; in other words, colours are private to the individual perceivers and not intrinsic qualities of objects. According to the *Theaetetus*, therefore, colours should not be ascribed to objects, but they should be thought of as being relative to the perceivers. This is, in fact, how Socrates first applies Protagoras' Secret Doctrine to the case of colour vision:

[T2] *Socrates:* Then, my friend, you must understand our theory in this way. In the sphere of vision, to begin with, what you would naturally call a white colour is not itself a distinct entity, either outside your eyes or in your eyes. You must not assign it any particular place (*chôran*); for then, of course it would be standing at its post; it wouldn't be in process of becoming (*en genesei*).

Theaetetus: But what do you mean?

Socrates: Let us follow what we stated a moment ago, and posit that there is nothing which is, in itself, one thing. According to this theory, black or white or any other colour will turn out to have come into being through the impact of the eye upon the appropriate motion (*phoran*); and what we naturally call a particular colour is neither that which impinges (*prosballon*) nor that which is impinged upon (*prosballomenon*), but something which has come into being between (*metaxu*) the two, and which is private (*idion*) to the individual percipient. – Or would you be prepared to insist that every colour appears to a dog, or to any other animal, the same as it appears to you?

Theaetetus: No, I most certainly shouldn't.

Socrates: Well, and do you even feel sure that anything appears to another human being like it appears to you? Wouldn't you be

much more disposed to hold that it doesn't appear the same even to yourself because you never remain like yourself?

Theaetetus: Yes, that seems to me nearer the truth than the other.[8]

So, according to this passage, the colour of an object is nothing but a private experience; the colour exists only as long as there is such an interaction between a particular perceiver and a particular object that generates, for instance, the colour white.

Furthermore, Plato continues his presentation of the Secret Doctrine by clarifying that there are no stable objects or perceivers since they are all regarded in this theory as motions. For instance, when we say that our eyes see something white, this should be understood as actually meaning that one slow motion, our eyes, is affected by another slow motion, the object, in such a way as to produce two further motions that are quick and take the form of spatial movement; one of these motions is the colour of white, or whiteness, while the other is its perception, i.e. seeing white:

[T3] *Socrates:* Look here, then, let us see if we can somehow round it off. What it is trying to express, presumably, is this. All these things are in motion (*kineitai*), just as we say; and their motion (*kinêsei*) is distinguished by its swiftness or slowness. What is slow has its motion in one and the same place (*en tôi autôi*), and in relation to the things in the immediate neighbourhood (*pros ta plêsiazonta*); in this way it generates and the offspring are swifter, as they move through space (*pheretai*), and their motion takes the form of spatial movement (*en phorai*).

Thus the eye and some other thing – one of the things commensurate (*summetrôn*) with the eye – which has come into its neighbourhood, generate both whiteness and the perception which is by nature united with it (things which would never have come to be if it had been anything else that eye or object approached). In this event, motions arise in the intervening space (*metaxu*), sight (*opseôs*) from the side of the eye and whiteness (*leukotêtos*) from the side of that which cooperates in the production of the colour. The eye is filled with sight; at that moment it sees, and becomes not indeed sight, but a seeing eye (*ophthalmos orôn*); while its partner in the process of producing colour is filled with whiteness, and becomes not whiteness but white (*leukon*), a white stick or stone or whatever it is that happens to be coloured this sort of colour.[9]

Indeed, the relational character of colour, which Protagoras' Secret Doctrine promotes, becomes even clearer in a later passage, in which the term "*poiotês*" is coined for the first time by Plato from the interrogative adjective "*poios*", meaning "of what kind?":

[T4] *Socrates:* Then I want you to consider this point in their theory. As we were saying, they hold that the genesis of things such as warmth and whiteness occurs when each of them is moving (*pheresthai*), together with a perception, in the space between (*metaxu*) the active and passive factors: the passive factor (*paschon*) thereby becoming percipient, (*aisthanomenon*) but not a perception (*aisthêsis*), while the active factor (*poioun*) becomes such or such (*poion ti*), but not a quality (*poiotês*) – isn't that so? But perhaps 'quality' seems a strange word to you; perhaps you don't quite understand it as a general expression. So I will talk about particular cases. What I mean is that the active factor becomes not warmth or whiteness (*leukotêtos*), but warm and white (*leukon*); and so on. You will remember, perhaps, that we said in the earlier stages of the argument that there is nothing which in itself is just one thing; and that this applies also to the active and passive factors. It is by the association of the two with one another (*pros allêla*) that they generate perceptions and the things perceived; and in so doing, the active factor becomes such and such, while the passive factor becomes percipient.[10]

The broad lines of this "twin-birth" or "twin-offspring" theory of perception, as it has sometimes been called, are more or less clear:[11] Plato seems to advocate here a "constitutive view of relativity", which implies "existential symmetry; that is, the relative and correlative exist at all the same times".[12] In the case of colour vision, in particular, the *Theaetetus* account postulates that the colour white, to continue with the same example, does not exist in the absence of individual perceivers; and the same holds, of course, for all other colours, which means that colours are treated in this dialogue as perception-dependent. Needless to say, a closer look at these passages reveals a series of problems concerning the coherence of this theory of perception because Plato's descriptions of the Secret Doctrine are not always reconcilable. For example, in T2, when Socrates talks of "the impact of the eye upon the appropriate motion (*phora*)", he cannot have in mind an interaction between the eyes and the motion of the object as described in T3, since it would not be right to call it "*phora*" given that it is slow and not a spatial movement. Moreover, again in T2, the active role of the perceptual interaction is left to the eyes that impinge upon the object, whereas in T4 it is obviously left to the perceived object.[13] Contemporary scholars have noticed such inconsistencies and have been struggling to resolve them, in the hope of producing a coherent interpretation of the Secret Doctrine.[14] But my concern is different: Does Plato subscribe to this theory of colours and colour vision? For the all-pervasive relational character of colours in the *Theaetetus* seems to be in direct conflict with the realist interpretation of colours that we find in the *Timaeus*.

2.2 The Provenance of the *Theaetetus* Account of Colours

In my 2005 article, I claimed that, since the twin-offspring theory of perception is presented as Protagoras' Secret Doctrine, it "should not be taken to be Plato's own".[15] Besides, right after Socrates completes his exposition of the secret doctrine, Theaetetus remarks that he is not at all certain whether or not Socrates adheres to this theory of perception:

[**T5**] *Theaetetus:* I really don't know, Socrates. I can't even quite see what you're getting at – whether the things you are saying are what you think yourself, or whether you are just trying me out.[16]

Not surprisingly, Socrates replies that he is barren of theories and does not claim any doctrine as his own. He says that he only presents to Theaetetus the theories of those who are wise (*tôn sophôn*) and that he tries, by using the maieutic art, to help Theaetetus articulate his own ideas (*Theaetetus* 157c7–d2). This does not mean, however, that Socrates' presentation of the theories of the wise accurately corresponds to what the wise actually stated. In fact, there is a general agreement among contemporary scholars that the Secret Doctrine, as outlined in this Platonic dialogue, is not what Protagoras himself advocated.[17] The attribution by Socrates of this theory to Protagoras is described, for instance, as a "historical fiction" and as "playful".[18] But would it be more reasonable to connect the Secret Doctrine with Heraclitus' theory of flux, even though Socrates himself does not label it "Heraclitean"? Some scholars argued that the secret doctrine is "a strong type of Heracliteanism".[19] Others claimed that it is a mistake to call it "Heraclitean", since it is rather "a mix of metaphysical doctrines".[20] And others stressed that it is not at all a serious Heraclitean theory, because the distinction between slow and quick motions cannot be said to stem from Heraclitus, or because the concept of private perception is in conflict with Heraclitus' pronouncement that those who follow their own private senses instead of the common reason are fools.[21]

Still, there is a further point that we need to examine with regard to the provenance of the Secret Doctrine, for it is presented as a theory also endorsed by those whom Socrates characterises as "subtle" or "sophisticated" (*kompsoteroi*):

[**T6**] *Socrates:* Then I dare say you will be grateful to me if I help you to discover the veiled truth (*tên alêtheian apokekrummenên*) in the thought of a great man – or perhaps I should say, of great men?

Theaetetus: Of course I shall be, Socrates, very grateful.

Socrates: Then you have a look round, and see that none of the uninitiated are listening to us – I mean the people who think that nothing exists but what they can grasp with both hands;

people who refuse to admit that actions and processes and the invisible world in general have any place in reality.

Theaetetus: They must be tough, hard fellows, Socrates.

Socrates: They are, my son – very crude people (*amousoi*). But these others, whose mysteries (*mustêria*) I am going to tell you, are a much more subtle type (*kompsoteroi*). These mysteries begin from the principle on which all that we have just been saying also depends, namely, that everything is really motion (*kinêsis*), and there is nothing but motion.[22]

There is an unresolved debate between contemporary scholars who claim that Plato, here, refers implicitly to the Cyrenaics and others who deny such an identification. Risking oversimplification for the sake of brevity, the former group argues that the Cyreanic ontology relativised perceptions with regard to perceivers, and thus it coincided with the theory in the *Theaetetus*.[23] On the other hand, the latter group stresses that the Cyrenaics were not advocates of the doctrine of constant flux that constitutes the basis of this theory.[24] Since nothing in the text clearly suggests whom Plato has in mind, it is perhaps preferable to think, as it has already been proposed, that the subtler philosophers are nothing but "a fictional creation on Socrates' part".[25]

So, given that the subtler philosophers are possibly fictional, and given that the Secret Doctrine does not seem to faithfully represent Protagoras' or Heraclitus' views, should we perhaps assume that the theory of perception in the *Theaetetus* is a Platonic construction that reflects Plato's own position?[26] Many scholars simply take for granted that this theory originates with Plato.[27] Yet it is notably Francis Cornford who argued extensively in favour of this view and claimed that Plato's intention in the first part of the *Theaetetus* is not to reject the flux theory of perception, but to disprove the definition of knowledge as perception on the grounds that the perceived objects are constantly changing; if Plato attributes his own theory to others, Cornford stated, it is in order to "preserve the dramatic properties of dialogue".[28] Kenneth Sayre supported Cornford's position and added that this theory of perception contains "considerably more detail than is required for its role in the *Theaetetus*".[29] George Nakhnikian and Francesco Lisi put forward several further arguments in order to back up the view that Plato endorses the *Theaetetus* account of perception, and they also indicated that other Platonic dialogues express similar views.[30] More recently, Clément Heidsieck defended the Platonic character of the *Theaetetus* account by painstakingly arguing that it is in fact complementary to that in the *Timaeus*; in his view, the diverging features between the two dialogues can be mitigated, and thus the theories advanced in them can prove to be, if not identical, at least harmonious and supportive of each other.[31]

It is reasonable, though, that such an interpretation was heavily criticised, since there are good reasons to think that Plato opposes the theory of constant change not only for the Forms but also for the sensible world; it was

thus stressed that the *Theaetetus* account does not postulate fire-particles being emitted by the eyes and the visible objects.[32] In addition, Anne Merker and Anne Balansard argued against the position that Plato adheres to the *Theaetetus* account of perception, by stressing that crucial elements are missing from it, namely, the way daylight contributes to vision as well as the role played by the soul.[33] Most importantly, among those scholars who have defended this alternative interpretation, many claimed that it is nevertheless Plato himself who constructs it. For instance, Myles Burnyeat characterised the *Theaetetus* theory as "a dialectical construction".[34] Jane Day further added that Plato's aim in advancing this theory was simply "to make sense" of Protagoras' views.[35] Mitzi Lee presented it as Plato's "independent hypothesis" and "ancillary premise" for amplifying and subsequently rejecting Protagoras' claims.[36] Also, Arnaud Macé described it as a "thought experiment to see how far one could follow an idea, that is, the idea attributed to Protagoras that all appearances are true".[37]

But is it right to think that the *Theaetetus* account of perception is a fabrication that does not at all incorporate Plato's own views? Or, to put the question in a different way, if it is Plato himself who constructs this theory, from where does he assemble the elements that set it up? I reckon that Garry Runciman put forward a plausible nuanced position when he pointed out that

> Plato may ... have believed the actual mechanics of perception to be somewhat as they are described here. But he certainly never thought that, for instance, the whiteness of snow did not exist unless snow was somewhere being looked at by somebody.[38]

In other words, Runciman seems to have distinguished in the relevant passages of the *Theaetetus* between, on the one hand, the underlying ontological account of colours and, on the other, the physiology of perception and, in particular, the physiology of the sense of vision described in this dialogue. His suggestion was that, although Plato does not subscribe to the metaphysics of this part of the dialogue, the presentation of the physiology of vision contains Platonic elements. Runciman, however, did not elaborate on this point. So, in what follows, I want to develop his nuanced position and claim that there are Platonic features in the *Theaetetus* account of vision. Indeed, I think that these features bring it close to the *Timaeus* theory, even though the metaphysical presuppositions of the two dialogues differ.[39]

2.3 Comparing the Two Accounts: Similarities

Let me start with the similarities between the *Timaeus* and the *Theaetetus* accounts of colours and colour vision. In his running commentary on the *Theaetetus*, Timothy Chappell correctly remarked that Plato uses the notion of *summetria* both in the *Timaeus* (67c8), when he defines colour as a flame

having its particles commensurate with those of the visual stream, and in the *Theaetetus* (156d2), when he says that the white colour and the seeing eyes are generated by the interaction of the eyes with something commensurate with them.[40] But Chappell downplayed this similarity, by pointing out that the same notion is used in a similar definition of colour that we find in the *Meno* (76d4–5), where it is explicitly attributed to Empedocles. In my view, however, the indisputable fact that Empedocles influenced Plato does not imply that the notion of *summetria* should not be regarded as genuinely Platonic. On the contrary, it seems that this notion becomes fully integrated into Plato's own theory of colour, and its occurrence in the *Theaetetus* passage obviously connects it to the *Timaeus* account of colours.

Also, there is an even more important similarity between the *Theaetetus* and the *Timaeus* accounts of colours, which has been either discarded or ignored by contemporary scholars. In all quoted passages from the *Theaetetus* in which Socrates describes how colours are produced, i.e. in Texts 2–4, it is explicitly stated that colours are generated between (*metaxu*) the perceiver and the perceived object. Since Plato does not make a similar statement in the *Timaeus*, it has been assumed that this is a doctrine that we find only in the *Theaetetus*; in fact, Gösta Grönroos included among the important differences between the two dialogues the fact that "the sensory qualities are assumed to feature in-between the slow motions in the *Theaetetus*, whereas there is no suggestion in the *Timaeus* that the visual current takes on colour".[41] As to how we should understand "*metaxu*" in the *Theaetetus* passages, Job van Eck claimed, against the standard interpretation, that it is not used "to mark an opposition to a location, e.g. 'in the eye' or 'in the thing which collides', but to an identification: the colour is neither the eye nor the object observed".[42] To support his view, Van Eck used the following argument:

> Taking *metaxu pheresthai* as moving to and from, a travelling across the touching surfaces, would not only mean that at (fractions of) moments the quality will be in the observer: by the same token the perception will sometimes be in the object. This is unacceptable.[43]

Perhaps this may be unacceptable, but "moving to and from" is not the only way to understand the phrase "*metaxu pheresthai*" in the *Theaetetus* account of colours, if we are to follow the standard interpretation that takes "*metaxu*" to denote location. The majority of scholars were in good company when they claimed that, according to the *Theaetetus*, colours are actually generated in the space between the perceivers and the objects perceived. For this is how both Theophrastus and Alexander of Aphrodisias interpret the Platonic theory of vision, and what is particularly intriguing is that their interpretation is based on the way they read the Platonic theory of colours and colour vision in the *Timaeus*. To substantiate my claim, let me quote paragraph 5 of Theophrastus' *De sensibus*, in which he gives an abbreviated report on Plato's

views about the sense of vision, principally based on the *Timaeus*; interestingly enough, Theophrastus here says that, according to Plato, the stream of fire-particles emitted by the eyes proceeds up to a point where it coalesces with the fire-particles emitted by the perceived object:

> [**T7**] He [i.e. Plato] ascribes vision to fire. (That is why [he conceives of] colour, too, as a kind of flame from bodies with particles commensurate (*summetra*) with vision, on the assumptions that there is an effluence and that they must fit into each other.) It [i.e. vision] proceeds from the eye up to a point (*mechri tinos*) and coalesces with the effluence, and then we see (as if placing his own view midway between (*eis to meson*) those who say that vision impinges upon [visible objects] and those [who say that something] is carried to it from visible objects).[44]

Theophrastus' summary is generally considered fairly accurate, even though it is very brief and one may detect important omissions when comparing it to the more detailed account of the *Timaeus* as, for instance, the absence of the role of daylight in vision. However, what is here of particular significance, for our purposes, is Theophrastus' remark that Plato, by stating that the visual stream proceeds up to a point, places his theory midway between, on the one hand, the theories according to which we see because something from the eyes impinges upon the perceived object and, on the other, the theories according to which we see because something is emitted by the perceived object. In this way, Theophrastus presents the Platonic doctrine as a third alternative to what we would nowadays refer to, respectively, as the extromission and intromission theories put forward by other ancient philosophers. And a similar sketch of Plato's theory of colour can also be found in Alexander of Aphrodisias' comments on Aristotle's *De sensu*:

> [**T8**] Of those who gave similar descriptions of how seeing is produced some thought that what comes out from the eyes is extended as far as the object being seen, as the mathematicians [think], who say that we see by means of rays that come out from the eyes and are extended up to the objects being seen... Others say that the light that is sent out from the eyes proceeds up to a point (*mechri tinos*) and then comes to be commingled with the light outside, and seeing comes about when this light, which is composed of both and fused together, impinges at its boundary upon the eyes and announces the affection to the eye, as seems [to be the case] to Plato.[45]

It seems, therefore, that the Peripatetics offer an interpretation of Plato's theory of vision according to which the visual stream coalesces with the effluences from the perceived object at a point in-between our eyes and the perceived object, and hence colours are produced by this midway blending of the fire-particles coming from the perceiver with those coming from the

perceived object.[46] But if this is the way the *Timaeus* theory is understood by Theophrastus and Alexander, it becomes quite similar to what we find in the *Theaetetus*.

Furthermore, such an interpretation of Plato's theory of colours may also help us to explain a passage in the *Theaetetus* that has greatly puzzled contemporary scholars, namely, the last two sentences of [**T3**]:

> In this event, motions arise in the intervening space, sight from the side of the eye and whiteness from the side of that which cooperates in the production of the colour. The eye is filled with sight; at that moment it sees, and becomes not indeed sight, but a seeing eye; while its partner in the process of producing colour is filled with whiteness, and becomes not whiteness but white, a white stick or stone or whatever it is that happens to be coloured this sort of colour.[47]

Ian Crombie pointed out that, if seeing travels from the eye, it seems strange to say that the eye comes to be filled with seeing; similarly, if whiteness travels from the object, it seems strange to say that the object is filled with whiteness.[48] John McDowell tried to settle this difficulty in the following way:

> If seeing is thought of as an efflux originating at the back of the eyeball, there need be nothing strange about saying that when seeing travels from the eye, the eye is full of seeing. And if whiteness is thought of as an efflux of colour from the object, there need be nothing strange about saying that when whiteness travels from the object, the object is filled all round with whiteness.[49]

But as Day argued, such a view

> would imply that the eye becomes full of sight and the object filled all round with colour at the point when the streams of particles were still on their way outwards to the space between, whereas the text clearly implies that they become full at that point when 'sight' and 'whiteness' are already in the middle area.[50]

I think that Theophrastus' and Alexander's interpretation of the *Timaeus* theory of vision sounds more promising for explaining this passage from the *Theaetetus*: since what is emitted by the eyes of the perceiver meets at some point what is emitted by the object, it is this coalescence that subsequently produces what fills the eyes, so that it actually generates seeing, as well as what fills the object, so that it acquires a certain colour.

Therefore, my contention is that the details in the *Theaetetus* passages concerning colours, especially the reference to the notion of *summetria* and the description of how colours are generated *metaxu* the perceiver and the perceived object, correspond to what we find in the *Timaeus* and should be regarded as elements from Plato's own theory. Indeed, the elaborate account

of the production of colours in the *Theaetetus*, to which these details markedly contribute, does not justify the view expressed by Day that the common elements between the two dialogues should not be thought of as Platonic but rather as "commonplace in Greek thought".[51] As far as I know, there is no evidence, in our admittedly meagre sources, which undoubtedly suggests that sophisticated theories of vision at the level of the *Timaeus* and the *Theaetetus* were actually advanced by thinkers before Plato.

2.4 Comparing the Two Accounts: Differences

On the other hand, there is no doubt that the accounts of the nature of colours in the two Platonic dialogues differ significantly. Although colours in the *Theaetetus* are private to each individual perceiver and do not survive the moment of interaction between the perceiver and the perceived object, in the *Timaeus* an object has the colour it has whether someone sees it or not. So, as it has often been stated, the background ontologies of the two dialogues are at variance. For instance, Burnyeat phrased this difference as follows: "the *Timaeus* assumes stable objects to give off the particles and stable sense organs to respond; the theory presupposes the notion of things having a continuing identity through time, which it is the very purpose of the *Theaetetus* story to deny".[52] Or, in David Sedley's words, "objects are bundles of perceived properties in the *Theaetetus*, in contrast to the objects in the *Timaeus* that are constituted from particles of the four basic elements".[53] Chappell, however, rejected this view and argued that "there is little trace of 'stable objects' in the *Timaeus* theory of perception", since this dialogue mainly talks of the four basic elements and "has little or no primary epistemological place for the idea of things".[54] Also, Lesley Brown claimed that the phenomenalist position, which defends the view that in the *Theaetetus* objects are totally dissolved into bundles of momentary perceptions, is completely "unwarranted by a sober reading of the text".[55] Although my aim is not to analyse the general metaphysical underpinnings of the two Platonic dialogues, it seems to me that the constant motions introduced in the *Theaetetus* are certainly not meant to be anything other than motions, whereas the *Timaeus* account is concerned with solid collections of particles of the four basic elements.

Still, I cannot but admit that there is an unsettled issue concerning the interpretation of the *Timaeus* ontology of colours, an issue which also puzzled me in my 2005 article. For, after the definition of colour in the *Timaeus*, Plato refers to colours as "affections" (*pathêmata*: 67e3); and there is an earlier passage in the same dialogue that gives us a clue as to why he thinks that colours and all other perceived properties of objects should be regarded as affections:

> [**T9**] We have now pretty much completed our presentation of the kinds of bodies that are distinguished by their multifarious shapes, their combinations and their transformations into one another. Now we must try to shed some light on what has caused them to come to have the

> affections (*pathêmata*) they do. First, we need at every step in our discourse to appeal to the existence of sense perception, but we have so far discussed neither the coming to be of flesh or of what pertains to flesh, nor of the part of the soul that is mortal. It is the case, however, that we cannot give an adequate account of these matters without referring to perceptual affections, but neither can we give an account of the latter without referring to the former, and to treat them simultaneously is all but impossible. So, we must start by assuming the one or the other, and later revisit what we have assumed. Let us begin by taking for granted for now the existence of body and soul. This will allow our account of these affections to succeed the account we have just given of the elemental kinds.[56]

Plato thus suggests that, in order to know, for instance, the colour of an object, one needs to examine both the object that has this colour and the sense organ by means of which one sees it; in other words, one needs to take into consideration both the perceived object and the perceiver. But does this process of inquiring into colours presuppose their dependence on sense perception, which consequently brings the *Timaeus* theory close to what we find in the *Theaetetus*?

Besides, one could reasonably argue that Plato in the *Timaeus* defines colour as fire-particles emitted by an object, but his description of the production of basic colours takes also into consideration how these fire-particles interact with what is emitted by the eyes of the perceiver.[57] For, as mentioned above, something is white when the fire-particles it emits are smaller than those of the visual stream, and thus they divide it, whereas something is black when the fire-particles it emits are larger than those of the visual stream, and thus they compress it. Even more interesting is the case of the other two basic colours, namely, the colour bright and the colour red. According to my understanding of Plato's theory of basic colours, something is bright when the fire-particles it emits are much smaller and therefore quicker than those emitted by something white, with the result that they divide the fire-particles of the visual stream right up to the eyes and then force their way into the passages of the eyes; this disturbance in the eyes causes tears, and these tears blend in different proportions with the fire-particles emitted by the object and produce the dazzling effect due to which we see all kinds of hues, i.e. the colour bright (*Timaeus* 67e6–68b1).[58] Something similar, though not exactly the same, happens in the case of the production of the colour red: Something is red when it emits fire-particles bigger than those emitted by a bright object, but smaller than those emitted by a white object; these fire-particles, because of their size, have such a speed so as to reach the moisture of the eyes, and they blend with it in such a way that they come to shine through it, with the result that we see the colour red (*Timaeus* 68b1–5). So, is it the case that the stream of fire-particles emitted by an object cannot be said to be the colour white or black or, for that matter, the colour bright or red until these

fire-particles actually blend with the visual stream and affect the eyes of the perceiver?

Right at the end of my 2005 article, I suggested that, in order to give an adequate reply to this question, we need to remember that the *Timaeus* offers a teleological account of the world, according to which the cosmos is created by an intellect. More specifically, this is how I then argued:

> Plato seems to think that sentient beings, on the one hand, and physical bodies, on the other, are created in such a way that bodies have perceptual properties which can be perceived because living beings have been endowed with a perceptual apparatus which allows them to discriminate these properties and thus to discriminate between bodies in virtue of these properties. If this is so, it is straightforwardly true that we cannot fully understand bodies and their affections independently of the organisation of perceiving animals, and the other way round. But this does not in any sense change the fact that colours, according to Plato, are properties which bodies do actually have independently of the sentient beings which perceive them. Or, to be more precise, ...that bodies, according to Plato, have colours insofar as they emit effluences of a certain kind quite independently of the sentient beings which perceive them.[59]

Pauliina Remes expressed her disagreement with my position and claimed that Plato's theory of colours in the *Timaeus* lies "in-between realism and irrealism".[60] For Plato, she argued, is a realist about the fire-particles emitted from objects, but colours as colours depend on the perceivers. To support her view, she presented the following thought-experiment: Consider a situation in which it is possible to actually perceive the details of the proportions and sizes of the fire-particles emitted both by the perceiver and the perceived object. We could, then, track different colours just by looking at these proportions and sizes of the fire-particles interacting with one another. On the other hand, if someone could only access the proportions and sizes of the fire-particles emitted by the perceived object and not of those emitted by the eyes, this person could not say which proportions and sizes correspond to which colours. According to Remes, this thought-experiment shows that colours are ontologically dependent on the perceived object but also on the perceiver.

I am not convinced by Remes' argument, and thus I do not think that we should place Plato's theory of colours in-between realism and irrealism. As Remes herself admitted, the proportions and sizes of fire-particles that determine the colour of an object, whether they come from the eyes of the perceiver or from the perceived object, are perfectly real in Plato's view. Moreover, and most importantly, the existence of colours depends, as the *Timaeus* definition of colour clearly states, merely on the fire-particles emitted by the visible objects, and hence colours are real and objective. It is only the perceived

colours that crucially depend on the interaction of the fire-particles emitted by the visible objects with the fire-particles emitted by our eyes. If there were no perceivers, there would still be colours, although they may not be the colours white, black, bright, and red that we perceive, since the perception of these colours depends on us, too. But even if we as perceivers could not tell which proportions and sizes correspond to which colours, Plato's teleological theory postulates that the Demiurge has full knowledge of them. Therefore, the fact that perceived colours partly depend on the sense organs of the perceiver does not make the Platonic position on the ontology of colours less of a realist theory. Indeed, it is this realist standpoint that certainly differentiates, in my view, Plato's theory of colours in the *Timaeus* from the account he constructs and presents in the *Theaetetus*.

2.5 Conclusion

No doubt the scholarly literature on the two Platonic dialogues discussing colours and colour vision is immense. I have profited greatly from it in making up my mind about Plato's position on the ontological status of colours. According to my view, as I have tried to show, there are important differences between the theory of colours in the *Timaeus* and the relevant passages in the first part of the *Theaetetus*, differences which are principally due to the conflicting metaphysical backgrounds of the two dialogues. On the other hand, there are also similarities between them, which clearly suggest that, although Plato does not endorse the *Theaetetus* account of perception in its entirety, there are Platonic elements in it. For Plato draws in this dialogue the implications of Protagoras' relativist doctrine, by applying it in the case of colour vision; since Protagoras himself seems not to have had an elaborate colour theory, Plato constructs the *Theaetetus* account of colours with elements borrowed from his own realist theory, which we find articulated in the *Timaeus*.

Notes

1 See, e.g. Bodnár, "Atomic Shapes"; Mueller, "The Triangles in Plato's *Timaeus*"; Brisson, "Plato's Theory of Sense Perception in the *Timaeus*"; Merker, *La vision chez Platon et Aristote*, 44–53; Struycken, "Colour Mixtures according to Democritus and Plato".
2 Ierodiakonou, "Plato's Theory of Colours in the *Timaeus*", 219.
3 On the relative chronology of the two dialogues, which is considered particularly important for the understanding of the development of Plato's theory of Forms, see Owen's suggestion that the *Timaeus* preceded the *Theaetetus* ("The Place of the *Timaeus* in Plato's Dialogues") as well as Cherniss' contrary proposal about the late dating of the *Timaeus* ("The Relation of the *Timaeus* to Plato's Later Dialogues"); also, see Bostock's subsequent revival of Owen's position (*Plato's Theaetetus*, 7–9 and 146–155) and Brown's contrary arguments based on stylometric tests ("Understanding the *Theaetetus*", 202–203).
4 See Sedley, *The Midwife of Platonism*, 6–8 and 103–105.
5 Plato, *Timaeus* 67c6–7; my translation.

6 This short presentation of Plato's theory of colours in the *Timaeus* draws heavily from my article "Plato's Theory of Colours in the *Timaeus*", in which I justify the above claims in more detail.
7 For the variety of -isms that have been invoked in interpretating Protagoras' Secret Doctrine, see, e.g. Burnyeat, "Protagoras and Self-Refutation in Later Greek Philosophy", 46 and "Conflicting Appearances", 76–85; Fine "Conflicting Appearances: *Theaetetus* 153d–154b", 126–129; Lee, *Epistemology after Protagoras*, 30–45.
8 Plato, *Theaetetus* 153d8–154a9; trans. Levett rev. Burnyeat, 274–275.
9 Plato, *Theaetetus* 156c7–e7; trans. Levett rev. Burnyeat, 278.
10 Plato, *Theaetetus* 182a4–b7; trans. Levett rev. Burnyeat, 311–312.
11 See, e.g. Lee, "Thinking and Perception in Plato's *Theaetetus*", 48–51 and *Epistemology after Protagoras*, 110-117; Duncombe, *Ancient Relativity*, 34–36.
12 Duncombe, *Ancient Relativity*, 36.
13 For the active role of the perceived object, see also *Theaetetus* 159c4–10.
14 See, e.g. McDowell, *Plato: Theaetetus*, 130–131; Day, "The Theory of Perception in Plato's *Theaetetus*", 58–59.
15 Ierodiakonou, "Plato's Theory of Colours in the *Timaeus*", 231.
16 Plato, *Theaetetus* 157c4–6; trans. Levett rev. Burnyeat, 279.
17 It should be noted, though, that Bühler in his article "Protagoras: Wahrnehmung und Wahrheit" disagreed with this view and claimed that the Secret Doctrine is genuinely Protagorean.
18 The first remark is from Sedley, *The Midwife of Platonism*, 39 while the second from Lee, *Epistemology after Protagoras*, 84. Lee also suggested that Plato calls it "secret" presumably because Protagoras never explicitly defended such a doctrine and because he wants to insinuate that "the opening line of Protagoras' book was like the pronouncement of an oracle, mysterious and incomprehensible".
19 Van Eck, "Moving Like a Stream", 199 and "Perceptual Relativism and Change", 217.
20 Lee, *Epistemology after Protagoras*, 85; see also "The Secret Doctrine: Plato's Defence of Protagoras in the *Theaetetus*", 58–59.
21 See Cooper, *Plato's Theaetetus*, 43–44 and Macé, "Priviting Perception", 203, respectively.
22 Plato, *Theaetetus* 155d9–156a5; trans. Levett rev. Burnyeat, 277.
23 See Zilioli, *The Cyrenaics*, 50–63.
24 See Tsouna, *The Epistemology of the Cyrenaic School*, 124–137.
25 Sedley, *The Midwife of Platonism*, 46, n. 67.
26 For a survey of the various replies to this question suggested by nineteenth century scholars, see Lisi, "Heraclitus, Protagoras and Plato", 54.
27 See, e.g. Yolton, "The Ontological Status of Sense-Data", 40; Crombie, *An Examination of Plato's Doctrine*, 21–22.
28 Cornford, *Plato's Theory of Knowledge*, 49.
29 Sayre, *Plato's Late Ontology*, 216.
30 See Nakhnikian, "Plato's Theory of Sensation", 314–319 and Lisi, "Heraclitus, Protagoras and Plato", 56–60.
31 See Heidsieck, "La vision dans le *Théétète* et le *Timée* de Platon".
32 See Owen, "The Place of the *Timaeus* in Plato's Dialogues", 86; McDowell *Plato: Theaetetus*, 139; Irwin "Plato's Heracleiteanism", 2–3.
33 See Merker, *La vision chez Platon et Aristote*, 50 and Balansard, *Enquête sur la doxographie platonicienne*, 253–256.
34 Burnyeat,"Protagoras and Self-Refutation", 76 and "Idealism and Greek Philosophy", 8.
35 Day,"The Theory of Perception in Plato's *Theaetetus*", 54–55.

36 Lee,"The Secret Doctrine", 54 and *Epistemology after Protagoras*, 77.
37 Macé,"Priviting Perception", 195.
38 Runciman, *Plato's Later Epistemology*, 19–20.
39 My position is similar to that of Chappell (*Reading Plato's Theaetetus*, 77), who claims that "The *Timaeus* theory is Plato's own, dressed out in his own way. The *Theaetetus* theory is the same or a very similar theory, but deliberately presented without the views about knowledge which is *not* perception that are the backdrop to this theory of perception in Plato's own thought". However, as it will become clear in what follows, I disagree in some regards with Chappell's understanding of the similarities and differences between the accounts of vision in the two dialogues.
40 Chappell, *Reading Plato's Theaetetus*, 76–78.
41 Grönroos, *Plato on Perceptual Cognition*, 151, n. 9.
42 Van Eck, "Moving Like a Stream", 204; see also "Perceptual Relativism and Change", 226. Van Eck's dispute with the standard interpretation is more general: the standard interpretation claims that the slow motions in the *Theaetetus* theory of perception are alterations, whereas the quick motions take the form of spatial movements (see, e.g. Cornford, *Plato's Theory of Knowledge*, 49–50; McDowell, *Plato: Theaetetus*, 138 and 143; Cooper, *Plato's Theaetetus*, 39; Lee, "The Secret Doctrine: Plato's Defence of Protagoras", 62–66 and 74–76; Sedley, *The Midwife of Platonism*, 92). In both his articles, Van Eck attempts to reject this interpretation and defends the view that the slow and quick motions should instead be thought of as long-lasting and short-lived motions, respectively. See also, Christopher Buckels' more recent criticism of the standard interpretation; according to him, slow motions cannot be stationary and quick motions must also be changing qualitatively ("The Ontology of the Secret Doctrine in Plato's *Theaetetus*", 245–246).
43 Van Eck, "Moving Like a Stream", 218; see also "Perceptual Relativism and Change", 228.
44 Theophrastus, *De sensibus* 5: "καὶ τὴν μὲν ὄψιν ποιεῖ πυρός. (διὸ καὶ τὸ χρῶμα φλόγα τιν' ἀπὸ τῶν σωμάτων σύμμετρα μόρια τῇ ὄψει ἔχουσαν, ὡς ἀπορροῆς τε γινομένης καὶ δέον ἐναρμόττειν ἀλλήλοις.) ἐξιοῦσαν <δὲ> μέχρι τινὸς συμφύεσθαι τῇ ἀπορροῇ καὶ οὕτως ὁρᾶν ἡμᾶς· ὥσπερ ἂν εἰς τὸ μέσον τιθεὶς τὴν ἑαυτοῦ δόξαν τῶν τε φασκόντων προσπίπτειν τὴν ὄψιν καὶ τῶν φέρεσθαι πρὸς αὐτὴν ἀπὸ τῶν ὁρατῶν"; my translation.
For the differences between this text and the one edited by Diels, see Ierodiakonou, "Theophrastus on Plato's Theory of Vision", 251–252.
45 Alexander of Aphrodisias, *in De sens*. 27.26–28.15; trans. Towey modified, 37.
46 It is worth noting that there is a different interpretation offered by Galen (*De placitis Hippocratis et Platonis* VII 5.1–7, 452.30–454.9), who claims that, in Plato's view, what emanates from our eyes immediately assimilates the surrounding air to itself, so that there is no reason to postulate fire-particles travelling from our eyes and meeting midway the effluences from the object perceived. For a more detailed study of the reports on Plato's theory of colours given by Theophrastus, Alexander, and Galen, see Ierodiakonou "Theophrastus on Plato's Theory of Vision".
47 Plato, *Theaetetus* 156d6–e7.
48 Crombie, *An Examination of Plato's Doctrine*, 22.
49 McDowell, *Plato: Theaetetus*, 139–140.
50 Day, "The Theory of Perception in Plato's *Theaetetus*", 66. Also, Nakhnikian ("Plato's Theory of Sensation", 142–143 and 149–150) claimed that, when the seeing from the eye and the whiteness from the object meet, they form a continuous "pencil" of light. Buckels ("The Ontology of the Secret Doctrine in Plato's *Theaetetus*", 249), on the other hand, stressed that such a meeting is not explicitly mentioned in the text of *Theaetetus*.

51 Day, "The Theory of Perception in Plato's *Theaetetus*", 80.
52 Burnyeat, *The Theaetetus of Plato*, 17.
53 Sedley, *The Midwife of Platonism*, 46.
54 Chappell *Reading Plato's Theaetetus*, 77.
55 Brown, "Understanding the *Theaetetus*", 205.
56 Plato, *Timaeus* 61c3–d5; trans. D. J. Zeyl modified, 1263–1264.
57 See, e.g. Cornford, *Plato's Theory of Knowledge*, 50; Day, "The Theory of Perception in Plato's *Theaetetus*", 67.
58 Ierodiakonou, "Plato's Theory of Colours in the *Timaeus*", 226–227.
59 Ierodiakonou, "Plato's Theory of Colours in the *Timaeus*", 232.
60 Remes,"Plato: Interaction between the External Body and the Perceiver in the *Timaeus*", 20–22.

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