

Aspect perception and conceptual perception

Wittgenstein on seeing and understanding

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1. Introduction

Aspect perception is one of Wittgenstein's central concerns in his remarks on the philosophy of psychology. One can read in the *Philosophische Untersuchungen*¹ that his goal is to determine its place among what he calls "experience concepts" (as one knows, experience concepts, *Erfahrungsbegriffe*, are a subset of *Erlebnisbegriffe*). *Gemütsbewegungen* (=emotions), for instance, fall under *Erlebnisbegriffe* but are not experiences.² However, this place is not easy to figure out because aspect perception has numerous relations with the various psychological concepts Wittgenstein has dealt with. Those concepts are everyday concepts such as thought, understanding etc. and their main feature, according to the *Bemerkungen über die Philosophie der Psychologie* seems to be that their use at the first person, present tense, is expressive and that the other uses are descriptive. However, Wittgenstein eventually says that this is not quite right:

"Satz in der dritten Person Präsens: Mitteilung, in der ersten Person Präsens Äusserung (Stimmt nicht ganz)."³

There are deep connections between the expressive use of language and aspect perception. I think that one of Wittgenstein's most significant remarks on the expressive use of language is the distinction he establishes between *report* (*Meldung*) and *exclamation* (*Ausruf*). Both are expressions ("*Ausdruck der Wahrnehmung und des Sehenserlebnisses*") but have two different meanings: the exclamation is connected to the experience (*Erlebnis*) just like cry is connected to pain.⁴ One could also say that in a different context the

¹ Wittgenstein *PU*, 1984a, II, xi.

² Wittgenstein *BPP*, 1984b, vol. 1, § 836.

³ Wittgenstein *BPP*, 1984b, vol. 2, § 63.

⁴ Wittgenstein *PU*, 1984a, II, xi.

report may well be incorporated into a descriptive language-game and that no such possibility exists for the exclamation. Thus, aspect perception sentences are basically expressive and the use of such sentences seems to be associated with the concepts we have just evoked and probably with many others: seeing an aspect involves a process of thinking⁵, a certain amount of understanding and also has to do with imagination⁶ etc. Wittgenstein underlines, for instance, that the dawning of an aspect is “half a visual experience and half a thought”.⁷

In addition to that, even if the importance of aspect seeing in mental life is beyond doubt, its cognitive and epistemological implications remain unclear. Some epistemologists have suggested that theory changes involve “conceptual disruption” and entail “world changes”, such changes being conceived as “Gestalt switch” or “aspect changes”. It is not surprising that after Newton or Lavoisier the world started to appear under a new aspect: such a statement is easy to find in the writings of philosophers and historians of science and has become a platitude even for the layman.⁸ However, one should notice that in this epistemological context, a special use has been devised for the verb *to see*: the new aspect of the world (or, as is sometimes misleadingly said, the “new world”) is not literally *seen*, and *to see* seems to be used here primarily in a metaphorical way. It is clear that *seeing as* in Wittgenstein’s writings appears as an expansion of *seeing* (Wittgenstein sometimes says that *seeing as* is, at the same time, comparable and not comparable with *seeing*) but an expansion is not always a metaphor: perceiving an aspect is still a kind of perceiving whereas perceiving the whole universe (or the history of humanity) is not. On some occasions Wittgenstein insists that the expansion is based on a categorial distinction between the perceived *objects*: *X* sees the resemblance between object A and object B (and therefore sees object A, for instance, under the aspect of its resemblance with

⁵ Wittgenstein *BPP*, 1984b, vol. 1, § 1036: “(...) *man einen Aspekt durch Gedanken hervorrufen kann*”.

⁶ Wittgenstein *PU*, 1984a, II, xi. Wittgenstein speaks of the ability to see a triangle as a reversed object and says that such an ability involves an imaginative power (“*Diesen Aspekt des Dreiecks zu sehen, braucht es Vorstellungskraft*”).

⁷ Wittgenstein *PU*, 1984a, II, xi. Wittgenstein seems to think, however, that purely optical (*rein optische*) aspects do exist. Wittgenstein *BPP*, 1984b, vol. 1, § 1017.

⁸ See for instance: Hanson 1958; Kuhn, 1969; Pickering, 1983.

object B) instead of simply seeing object A or object B.⁹ The point is that in the metaphorical use of *to see*, on the contrary, the categorial change concerns the word *to see* itself and not only the objects of vision: the term is transferred to another grammatical position and if one uses the word *to see* in such a way, it is doubtful whether the aspect which is supposed to be seen is, strictly speaking, a perceptual one. This point may be illustrated by one of Wittgenstein's remark on Freud. He notices that seeing one's life as a repetition of an *Urszene*, as having a tragic pattern, might be the source of "an immense relief".¹⁰ In other words, to see one's life as tragic and not only as an addition of foul and nasty episodes can be profitable from a therapeutic point of view. The benefit, if real, is based on an aspect perception, "perception" being understood here metaphorically: the patient eventually *sees*, figuratively speaking, his life *as* a tragedy. In summary: we must distinguish between the expansion of the use of a term (as if new threads were added to a family resemblance concept) and the conception of a completely derivative sense (such as *wedded* in *wedded to one's work*).¹¹ And this is a point we must keep in mind especially when we deal with a verb such as *to see*.

However, even taken literally, the locution *seeing an aspect* covers a family of phenomena and does not correspond to a clear-cut category. That is why the present paper tries to analyze as accurately as possible (1) both the literal and metaphorical uses¹² of *to see* in the reflections on aspect perception (2) the epistemological relevance of the two uses. The examination of this second topic will lead us to the conclusion that the so-called consequences of "world changes" and other "paradigm changes" cannot be easily justified by considering Wittgenstein's remarks about aspect changes.

⁹ Wittgenstein *PU*, 1984a, II, xi.

¹⁰ Wittgenstein 1972, 51.

¹¹ I borrow this example from Peter Hacker 1993, 129.

¹² One might say that in its metaphorical use, *to see* seems to refer to a kind of understanding.

2 Aspect perception and the will

In many of his writings on aspect perception, Wittgenstein insists that the changing of aspect is voluntary.¹³ Sometimes the dawning of it is described as something sudden, the new aspect itself being doomed to disappearance as soon as the observer releases his attention. Sometimes the new aspect remains and effort again is required to have the initial aspect back. The characteristic expression of aspect discovery, Wittgenstein says, is exclamation and exclamation is supposed to be the expression of surprise or excitement.¹⁴ Obviously, if a particular aspect occurs again and again, one would have to be simple-minded to exclaim at every new appearance of it. And even in the case of the first appearance, exclamation is not supposed to be everybody's reaction but only the most typical one. Incidentally, the voluntariness of aspect-change has to be taken *cum grano salis* and it is important to see why.

Wittgenstein would certainly have accepted to say that one can see aspects in nature (a face on a cliff carved by the sea, for instance), but the fact remains that most of his examples concern the grasp of aspects in pictures and drawings. And in many of these cases, the observer is guided by an order or a key. *If X looks at a drawing in accord with its key and does it successfully, X will see it, for instance, as an ice cube.*¹⁵ However, looking at the drawing in a certain way doesn't guarantee that the aspect will automatically become visible. *Trying to see* denotes a voluntary action but *to see* is a success verb. In other words, *to look at* is voluntary, may be interrupted by various events etc.; but *to see* (and this is true of seeing *simpliciter* as well as of *seeing as*) is neither an action nor an activity. There is an internal relation between the teacher's order and the way the student looks at things, just like such a relation exists between the rule of an action and the action itself (indeed, the teacher's instruction is the *reason* why the student looks at things the way he does); but no such internal relation exists between ordering and seeing the aspect. A key is nothing but an *interpretation* of the drawing and interpreting

¹³ This is suggested, for instance, in Wittgenstein *BPP*, 1984b, vol. 1, § 997: "*Es ist kein Zweifel dass man einem Aspekt oft durch eine Augenbewegung, durch eine Bewegung des Blicks, hervorruft.*" An eye movement is not always voluntary but may be voluntarily made and controlled.

¹⁴ Wittgenstein *BPP*, 1984b, vol. 1, § 862. In this paragraph, Wittgenstein describes exclamation as a primitive reaction (the kind of reaction a kid could have).

¹⁵ Wittgenstein *BPP*, 1984b, vol. 1, § 9.

is an action.¹⁶ But not all interpretations of pictures or drawings are such that the interpretation is eventually “incorporated” in the drawing, as Wittgenstein sometimes puts it. When the observer makes such an experience, one may say that he really *sees* the thing *as* the interpretation suggests, he dresses the object with the interpretation.¹⁷

On the one hand, an aspect perception seems easy to obtain (the observer discovers the aspect by himself, or as the result of being guided by his teacher’s instructions in such a way that it becomes difficult to miss). On the other hand, *seeing as* seems unstable: one may look at an object successfully a hundred times and once fail to see the aspect in it. A person may also see an aspect for the first time after a bump on the head (=involuntarily) but may well after that be able to see it again and again and then notice with surprise the persistence of aspect blindness (*i.e.*, the fact that someone doesn’t see an aspect that seems obvious) in somebody else. As a conclusion one may say that *X* very often succeeds in seeing an aspect after having made an effort (that’s why there is a point in saying that seeing an aspect is voluntary); it doesn’t mean that seeing in itself is an action and, strictly speaking, only actions can be described as voluntary. However, one may think that an ordinary perceptive judgment is also voluntary, so it must be clear that in the present discussion, the voluntary feature is the backward and forward movement from one aspect to another or from the situation where no aspect is visible to the situation where the aspect is being seen. We need now to see how this voluntary feature distinguishes aspect perception from other conceptual perceptions.

3. Cognition and seeing

The distinction between a capacity and its exercise is widely admitted among philosophers. But even if we agree with the idea that psychological verbs like *to think*, *to understand* very often denote capacities, the relation between our various mental capacities and their exercise deserves an analysis. I think a good way to start the examination of this subject is to distinguish between

¹⁶ Wittgenstein *BPP*, 1984b, vol. 1, § 21 and Wittgenstein 1984a, II, xi.

¹⁷ Wittgenstein *BPP*, 1984b, vol. 1, § 33 “(...) *sie (=die Deutung) verkörpert sich auch gleich im Gesehenen (...) Ich deute die Figur nicht nur, sondern ziehe ich auch die Deutung an.*”

capacities which are actualized through actions or activities and capacities which are not. My knowledge of French, for instance, is actualized through my speech acts. Vision is a capacity too, but its actualization is neither an action nor an activity, because, as we have said earlier, *to see* never denotes an activity. Many activities may be needed for something to be seen by me (I may look, watch, stare at, scan etc.) but *to see* is none of these activities. It is also important to establish a distinction between the cases where sight involves recognition and cases where no recognition is involved. If I see my favorite book by Wittgenstein on my desk, I cannot normally describe my perception as a recognition. But if some helpful person has put a new cover on it and has not informed me about this, it may become relevant to describe my new perception of the book as a recognition. Such a recognition may be accompanied by specific feelings such as surprise, astonishment etc. The conclusion is that those feelings, as one can see, are not exclusively connected with aspect perception: they may occur each time a recognition is involved in perception. In view of that, if we forget aspect perception for a while and focus on the analysis of the verb “to see” generally speaking, we need to distinguish between vision without recognition, on the one hand and, on the other hand, vision involving recognition, with or without *Erlebnisse* i.e. specific feelings (excitement, surprise). Those distinctions may easily be transposed to aspect perception as well as to action, as will be shown later on.

As everyone knows, the effort to eradicate various forms of immoderate mentalism is a constant feature of Wittgenstein’s philosophy of psychology. Mentalism is immoderate when it hypothesizes inner thoughts, inner psychological processes etc. in order to explain people’s behavior, even where no such suppositions are needed. When a rule, for instance, has become familiar to an agent, no mental act of recognition is needed from him every time he starts to follow it (he doesn’t have to consult it or to bear it in mind). Let us first examine two other examples of anti-mentalist therapy in the wittgensteinian spirit and then we will see how the distinctions established with the help of this therapy apply to aspect-perception. (1) The meaning of a word unknown to the speaker may, as we sometimes say, “penetrate” his mind at a determinate moment. Then, according to a remark by Wittgenstein, this moment will simply be the beginning of the speaker’s knowledge (“*Wem*

die Bedeutung einfiel (...) kann nun das Wort in dieser Weise anwenden)¹⁸. The meaning here is not an entity (mental or other) but the way the word is to be used, and the speaker's fresh knowledge is only the mastery of this use. Consequently, when the speaker's understanding of the word starts, it just means that his linguistic capacity has expanded. In other words, my acquisition of the employment of the term *t* is not necessarily underlined by a grasp of the rules governing this employment, even if such rules do exist and even if I may well be able to give them later on. (2) When I look in the drawer in order to find my keys and have discussion with a friend at the same time, it would be inaccurate to say that I "have in mind" the thought *that the keys are in the drawer*: the thoughts I have in mind are those I form in the course of the discussion. Nevertheless, as Norman Malcolm underlined,¹⁹ I may be said to *believe* that the keys are in the drawer. Simply thinking (or believing) that *p* (=a first level thought, in Malcolm's words) is different from forming the thought that *p* (=a second level thought). First level thoughts are implicit and visible only through the agent's behavior and sometimes such thoughts, as revealed by conduct, are in contradiction with those expressed in the agent's own statements (again: second level thoughts). The speaker's knowledge of the word's meaning in our previous example, the agent's belief that the key is in the drawer, my perceptual belief that a familiar object *O* is located in front of me are first level thoughts: I can *avow* them, I can *justify my actions* if asked by reference to them (for example, I might say that I move *O* because I suspect another object I need to be hidden behind it) but they're quite different from a reasoning being carried on or from sudden thoughts crossing the mind. We must notice that the locution *conceptual perception* is sometimes ambiguous, because it may be employed *stricto sensu* to denote perception involving an act of recognition and, in a broad sense, to denote perception underlined by first level thoughts. So, let us see now how those distinctions apply to the account of aspect perception.

It's very important to establish a distinction between the discovery of the aspect, properly speaking, and the perception of the aspect in the chronic sense.²⁰ In this latter sense, the aspect becomes familiar and our aspect

¹⁸ Wittgenstein *PU*, 1984a, II, ii and Wittgenstein *BPP*, 1984b, vol. 1, § 263.

¹⁹ Malcolm 1973, 13.

²⁰ Wittgenstein *BPP*, 1984b, vol. 1, § 1022: "*In chronischen Sinn ist er (= der Aspekt) nur die Art und Weise, wie wir die Figur wieder und wieder behandeln*". Aspect may become

perception is nothing but the way we deal with the object showing this aspect in our everyday business. In that case, one see an aspect just like one see a familiar object *simpliciter*, just like one follow a familiar rule or act upon a first level belief. We may draw a parallel between aspect change and a more complex variant of Malcolm's search in the drawer example. If the agent tries to find his keys and remain unsuccessful, he may starts a new search in some other place (let's say in his pocket). This doesn't mean necessarily that he forms in his mind the conclusion *that his first belief was wrong* or the proposition *that the keys must then be in the pocket*. He believes (wrongly) one thing and then another, but the two beliefs may remain first level beliefs, visible through the fact that the agent acts first in one way and then in another. If an observer sees an aspect *A* (in the chronic sense) and then another aspect *B* in the same object (also in the chronic sense), this may as well be described as a succession of first level thoughts.

This may be what Wittgenstein has in mind in the paragraphs 73 and 74 of the *Philosophische Untersuchungen*. He starts asking if a "general sample" of leaf may exist, *i. e.* a picture that wouldn't simply depict a particular leaf but the "general form of a leaf". He suggests that such a sample should be called a *schema*. He answers "yes" and notices that the difficulty is to understand how a particular sample can be understood in the right way, as a general schema of leaf, for instance, and not as the form of a particular leaf. The answer, to his opinion, is to be found in the way the sample is *applied* (*verwenden*). We might sum up this point by saying that an observer who *see* the drawing first *as* a picture of a particular form of leaf (aspect *A*) and then *as* a picture of a general form of leaf (aspect *B*) *categorizes* the sample successively in two different ways, but as far as the two successive aspects are both familiar, such categorizations may remain implicit (like first level thoughts) and the observer may not form in his mind the proposition *that the sample now illustrates aspect B* or anything of this kind. And if the change of aspect itself remains implicit, no specific *Erlebnis*, no insight experience is involved in it. People often says, Wittgenstein also reminds us, that the one who considers (*ansieht*) the sample *as* "the general form of leaf", *sees* it differently from the one who considers it only as the sample of a particular

familiar, but this has nothing to do with the idea that familiarity itself is an aspect. John R. Searle is wrong when he speaks of our everyday environment has showing an "aspect of familiarity" (Searle 1996, chap. 6).

form. In the first case indeed, the sample is understood as an illustration of the concept *general form of leaf* and that in the second case, the sample is understood as an illustration of the concept of *a determined form of leaf*. But it's a mistake, Wittgenstein adds, to imagine that because the schema implies a different categorization in the two cases, this difference must always echo in the agent's *Erlebnisse*. Such a change in the experience of the sample, in connection with a change in its categorization, may of course occur, as we will see in the next paragraph, but it doesn't *necessarily* occur and the change of one category for the other often boils down to a change in the way the sample is applied by the agent.

Wittgenstein doesn't deny that seeing something *as* first an object and then *as* another object (=to experience successively in two different ways) does exist. One may, for instance, see successively a picture as a schema or as a three dimensions object. Speaking of seeing as *stricto sensu* is, I think, appropriate when one at least of the two aspects requires an effort or a mental act to be seen: the observer interprets the key and, as we already have said, eventually "dresses" the picture with this interpretation. The interpretation of the picture may be called recognition, but the "dressing" of the picture is recognition in a different sense: the observer becomes *aware* of the aspect. Here, a new distinction has to be introduced. The awareness of the aspect must be distinguished from the feelings, emotions etc. that may accompany it. We may sum the previous considerations in three propositions. (1) An observer may see a familiar aspect only in a chronic sense (=he uses the object having this aspect in a certain way) (2) The same observer may become aware of a new aspect (3) Sometimes the word "awareness" denotes the awareness *simpliciter* and sometimes it denotes the awareness + the specific feelings that very often occur at the moment the observer becomes aware. This leads us to the last question we need to deal with in this section. If the awareness of the aspect as such is to be distinguished from ongoing feelings, what is it intrinsically?

In one of his remarks on psychology, Wittgenstein suggests that the awareness of lie is a power ("*Das sich-der-Lüge Bewusstsein ist ein Können*").²¹ He notices that this doesn't contradict the idea that feelings characteristic of lie do exist. The point is that the awareness *is not* identical

²¹ Wittgenstein *BPP*, 1984b, vol. 1, § 735.

with those characteristic feelings and may occur *without* those feelings. I may also have the intention to visit a friend and have a *Vorstellung* of this friend; but I may be right to say of myself that I have such an intention even if I don't have any *Vorstellung*. Incidentally, Wittgenstein himself suggest a connexion between being aware of a lie and being aware of an intention.²² My intentions are very often dispositions (it makes sense to say of an agent that he has such and such intention even if he is sleeping). Intentions may also be actualized only in actions, just like the previously called first level thoughts, and it may be very difficult for an agent to avow those implicit intentions. Wittgenstein is very clear about that when he says: "Only you can know if you had that intention".²³ This is of course a grammatical remark about how the word "intention" is used and the important point here is the auxiliary verb. Sometimes you *can* know and sometimes you have an effective recognition of what your intention was. When Wittgenstein says that the awareness of a lie is a power, he has in mind (1) something more than a disposition in the previous sense, (2) something different from its concomitant feelings. *Können* is also different from *tun* (doing). When you do something (mental calculation, for instance) you are supposed to be able to show publicly how you proceed ("... Tun ist etwas man Einem vormacht").²⁴ On the contrary, you don't need to do anything to be aware of your lie: you are able to avow it at any moment. Sometimes, in the case of *Absichten*, obstacles impede the knowledge by the agent of his own intentions,²⁵ but as soon as the agent has the required knowledge, he is able to express them, and this is what power consists in. That's why Wittgenstein comes to the suggestion that awareness of a lie and awareness of an intention belong to the same category. My point is that when aspect perception is not only a chronic one, it is a power as well. *To look at* belongs to the *tun* category (you can show someone how to look at something) ; *to perceive an aspect* belongs to the *können* category and when you attain this power you don't have anything special to do to exercise it: on the other hand, you can express it by exclamation, an underlining or a comparison. Some primitive reactions to aspect dawning seems to be

²² Wittgenstein *BPP*, 1984b, vol. 1, § 781: "Das Bewusstsein des Lügens ist von der Kategorie des Bewusstseins der Absicht."

²³ Wittgenstein *PU*, 1984a, § 247: "Nur du kannst wissen, ob du die Absicht hattest."

²⁴ Wittgenstein *BPP*, 1984b, vol. 1, § 655.

²⁵ See on this topic Mac Intyre's 1958 *locus classicus*.

connected to the dawning of the aspect like pain expressions are connected to pain: one may say that showing pain behavior is part of (=is a criterium for) what we call *having pain*. But no such connexion exists in all cases of aspect awareness: a violent pain without the slightest expression is improbable, but an unexpected aspect perception without characteristic expressions of aspect perception is perfectly believable. Eventually, we must remember that standard aspect seeing is voluntary and that pain is not.

We must now draw some cognitive consequences, especially from the distinction between aspect seeing understood as a power and the *Erlebnisse* and expressions (surprise, excitement, amusement) that are contingent upon it. If two persons see a giraffe and if the first one categorizes it *as* a giraffe and the second one *as* a mammal, this doesn't mean that they necessarily have different experiences when confronted to the giraffe.²⁶ The fact that one of the two speakers has lost sight of the *giraffe* category and has his talk about the animal oriented by his seeing it *as* a mammal, may be detected through the examination of his assertions, by noticing the things he stresses etc. Eventually, to say that he sees the giraffe *as* a mammal might only be convenient shorthand for two ideas: that he sees the giraffe and that he categorizes it in a certain way. This doesn't mean that, would the category have been different; the subject's perceptive experience would also have been different. Perception may be independent from a particular categorization without being independent from categorization in general. And this last remark brings us to epistemological issues I alluded to at the very beginning of this paper.

4. Paradigm shift and aspect seeing

To repeat myself, some epistemologists have drawn unexpected consequences from the idea of aspect perception. Norwood Hanson is one of them.²⁷ He first rejects the idea that the opposition between theories can be reduced to contradictory interpretations of the same *data*. Scientists with different theories are supposed, if Hanson is right, to "categorize the objects of their observation in correspondingly different ways, and must therefore, in a

²⁶ I borrow this example from Scheffler 1967, 41.

²⁷ Hanson 1958.

critical sense, be said to see different things”.²⁸ A new theory, among other things, reassigns the role of familiar descriptive terms and recasts definitions. The aspect change, according to his conclusions, has radical effects: *X* doesn’t only see an object under a new aspect but, strictly speaking, sees another object. According to Hanson, Tycho Brahe and Kepler, for instance, “do not observe the same thing”.²⁹ There seems to be a confusion underlying Hanson’s reasoning (and, to some extent, Kuhn’s reasoning too).³⁰ In fact, one may notice two strange things about the way the notion of aspect change contribute this discussion.

(1) The allusion to a change in the *data* is foreign to Wittgenstein’s reflections on *Aspektwechsel*, one of his most constant ideas being that when a new aspect dawns, the *data* remain the same (and this precisely why the phenomena is so puzzling). An aspect change is definitely not a change in the *data*. In reality, the dawning of an aspect is a change occurring, as we have already suggested, in the observer’s *reactions* to the very same *data*. So, if a change in *data* is involved in the process Hanson has in mind, this process can’t simply be the kind of change Wittgenstein has contributed to bring to attention.

(2) There’s something weird in the idea that Brahe and Kepler see different things when they stare at the same place in the night sky. On the contrary, a change in the aspect supposes the changing thing to be permanent: only the aspect changes. I suspect this specious view of Hanson and Kuhn to be inspired by a false idea about how categorization works. Categorization has two functions: individuation and sorting. Two category systems may well discriminate the same items and sort them in a different way. One may sort the giraffe as a giraffe; the other may sort the giraffe as a mammal.³¹ This is close to the distinction made by Quine between *ontology* and *ideology*: ontology is concerned by what counts as one individual, ideology is concerned by the way the discriminated individuals are classified.³² Hanson and Kuhn both tend to equate one of the two functions with the other and this is why they think that aspect change (and the categorial change that underlies

²⁸ Scheffler 1967, 14.

²⁹ Scheffler, 1967, 15.

³⁰ Kuhn 1969.

³¹ Scheffler 1967, 41.

³² Quine 1953, 131-132.

it) entails a change of things. So to speak, according to them, a change in the categories implies a change in the items falling into the categories. But to say that to see the moon *as* a planet and to see it *as* a satellite among others in the solar system is to see two different things is definitively puzzling. It's not even obvious that the way the same object (=the moon) is experienced changes from one situation to another.³³

One may find a good illustration of the previous confusion in Kuhn's assertion that what was for the scientist before the revolution a duck becomes after the revolution a rabbit. In Wittgenstein's example (taken from Jastrow) the very same thing (a drawing) *appears* alternately *as* a duck and *as* a rabbit. It would be absurd to sum up the situation by saying that the duck has become a rabbit. Kuhn is wrong if he thinks that he is dealing with the same problem as what seems to be Wittgenstein's one. His problem is to show that when a paradigm shift occurs, the "same" terms get another denotation; and you can't "see" new things (even if "see" is taken metaphorically) after an epistemic change and "see" the old things as different at the same time. The combination of change in reference with aspect change yields a conceptual monster. Only the false idea that there is no fixed nature behind the phenomena's (for ontological economy reasons, it seems), as Kuhn sometimes says, almost succeeds in making this monster look normal.

Kuhn makes both an interesting and confusing observation when he says that it is wrong to think that Priestley *saw* oxygen *as* air without phlogisticon: he simply saw the oxygen, he says. Unfortunately, this remark is made about a clearly metaphorical use of "to see": oxygen was not "seen", in any literal sense of "seen", at least during the second half of the eighteenth century. So, what is the visual metaphor here for? It can't mean that Priestley *understood* what oxygen was, because he didn't, and that's precisely what Kuhn himself stresses. Does it simply mean that Priestley *discovered* oxygen? This is a very controversial point, even according to Kuhn's own opinion. He "discovered" it but mistook it for air without phlogisticon: he didn't see it as a distinct gas. Lavoisier did (and so discovered it in a more accurate sense) but

³³ Kuhn 1967, chap. 8 et Feyerabend 1968. A kindred mistake may be noticed in Kuhn's and Feyerabend's remarks on Einstein's concept of mass compared to Newton's one. According to them, the two terms don't have the same denotation: here a change in the interpretation of a concept is taken to be also a change in its extension.

was wrong about its nature. I think that here the meaning of “to see” remains unclear. In this context, however, the use of the phrase *to see as* is understandable if you don’t pretend to describe one actor of the history of science’s position and waver, as an epistemologist in the course of doing his job is led to, between two paradigms, in other words, between this actor’s views and those of one of his colleagues in the commonwealth of learning. When opposing them, it becomes natural to say that *X sees oxygen as being P* and to say that *Y sees oxygen as being Q*. But, in reality, this *comparative sense* of *to see as* has nothing much to do with aspect perception. An actor of the scientific community can’t be on both sides of what Kuhn sometimes describes as a conversion, and that’s precisely why his point of view can’t be described as *seeing as*. The historian must be able to bear both paradigms in mind without, of course, adhering to both. To take another of Kuhn’s example, a scientist who sticks to Galileo’s paradigm will see a pendulum where a disciple of Aristotle will only see swaying stones. Here also it would be foolish to describe the situation by saying that Galileo has been the first to see the swaying stones *as* a pendulum.³⁴ So the reader has the right to be surprised when he discovers that Kuhn describes this revolution in the conception of movement as a “gestalt shift” caused by the paradigm. This again may at best describe the experience of a historian exercising his empathy to understand alternatively the visions of the two protagonists.

Kuhn is on a better former ground when he explains that in a Wilson chamber the physicist sees electrons’ traces where the layman only sees lines and droplets.³⁵ I think the idea of aspect perception really shed light here. To say that the physicist sees the lines and the bubbles *as* electrons’ traces is an accurate description of the situation. The lines and the droplets may look familiar or insignificant to the layman, but only the scientist can *see* them *as* symptoms of the electron presence. The important point here is that aspect perception is underlied by scientific knowledge and not by common sense categories. This might well be a mean to substantiate the view, recurrent in Kuhn’s writings, that members of the scientific community leave world which is not the ordinary man’s one. The absorption of scientific knowledge by the

³⁴ Kuhn 1969, chap. 9.

³⁵ Kuhn 1969, postscript.

scientist eventually gives him the power to see aspects he and his colleagues only are able to see.

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