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NORWOOD RUSSELL HANSON'S ACCOUNT OF EXPERIENCE

AN UNTIMELY DEFENSE

Our beliefs and theories about the world may be partly wrong, even irrational. But ultimately, we trust, our observations will help us correct them, hold them to objective standards, and make our dealings with the world more rational, responsive, and responsible to the facts. Observation, we think, plays a vital rational role: it constrains our thinking by anchoring it to reality's solid grounds.

As is widely acknowledged, too, observation is also thoroughly theory-laden. We couch it in terms that implicate theories we do or did once hold. And though we routinely distinguish observational from non-observational vocabulary, that distinction is malleable, some even contend that it is purely pragmatic or merely methodological (cf. e.g. deVries 2016). Moreover, our philosophical predecessors realized that the items on each side of the distinction depend in various ways on the items on the other. Consequently, the search for an independent stratum of observation that would be suitable as a semantic and epistemological foundation began to look hopeless, if not ill-conceived. But non-foundationalist alternatives, e.g. full-fledged semantic holism or epistemological coherentism, seem unpalatable, too. They provide ample room for semantic and epistemological interdependencies. But if on them, observation is not credited with any special epistemological significance, they surely go too far.

Observation constrains and anchors our thinking to the world, and is thoroughly infused by theory—both ideas are now deeply entrenched. But how are we to characterize observation and its rational and epistemic significance while giving theory-ladenness its due? How can observation free us from the superstitions that may affect it, how constrain our thinking while depending on what it purports to constrain? In addressing these issues, I submit, we benefit from revisiting the account of the philosopher who coined the term 'theory-ladenness of observation' in the first place: N. R. Hanson.

On Hanson's account,[1] theory-ladenness is not a contingent, but an essential feature of scientific observation: epistemically significant observation must be theory-laden.[2] Often, the term 'observation' is employed liberally, even to report what literally cannot be seen. Hanson, however, restricts its use to visual observation; throughout, his discussion is couched in terms of seeing.[3] Understanding Hanson's account thus requires that we first grasp why according to him, seeing must be theory-laden and in what sense. Next we must ask how such seeing may still constrain our thought.

To address the first issue, I proceed by examining three claims Hanson endorses:

i. Epistemically significant seeing involves seeing as.
ii. Seeing as is intelligible only in terms of seeing that.
iii. Through seeing as, beliefs can affect one's visual field.

§§1-3 are devoted to these claims. In §4, I show how on Hanson's account, observation can constrain our world-directed thinking. In §5, I contrast Hanson's account with some dominant contemporary views, and argue that Hanson's account, if suitably developed, provides a powerful alternative.

1. Epistemically significant seeing involves seeing as

Seeing, Hanson claims, is not just being in some physical state:

> (1) Seeing is an experience. A retinal reaction is only a physical state—a photochemical excitation. […] People, not their eyes, see. Cameras, and eye-balls, are blind. Attempts to locate within the organs of sight (or within the neurological reticulum behind the eyes) some nameable called 'seeing' may be dismissed. That Kepler and Tycho do, or do not, see the same thing [i.e. while looking at the sun at dawn] cannot be supported by reference to the physical states of their retinas, optic nerves or visual cortices: there is more to seeing than meets the eyeball. (*PoD*, p. 6f., cf. also: *PD*, ch. 4)

Qua experiences, passage (1) suggests, seeings are conscious states that cannot be fully characterized in physical terms: there is more to seeing than meets the eyeball. The quote also refers to a fictive case that Hanson frequently revisits: Tycho and Kepler look at the sun at dawn, in identical settings. Both visually relate to it and have normal vision. What is etched on their retinas may be identical, like the sketch each might draw of the scene (cf. *PoD*, pp. 6-7). But in an epistemically significant sense, Hanson claims, they start from different data. Though they face the same objects, they see different things (cf. e.g. *PoD*, p. 4).[4] How so? And in virtue of what is seeing epistemically significant to begin with?

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[1] Cf. Hanson 1958 [henceforth: *PoD*], chapter 1; Hanson 1969 [henceforth: *PD*]. Hanson's view is seldom discussed. Radder 2006, Lund 2010, and Hickey 2016 are rare exceptions. However, these authors do not distinguish the various forms of theory-ladenness I discuss below. Also, none emphasize the necessary relation that Hanson thinks obtains between seeing as and seeing that nor do they relate his account to the contemporary debate.

[2] To affirm that theory-ladenness is an essential feature of scientific observation is to oppose a common preconception. According to it, theory-ladenness is a problematic feature—something to be minimized and, ideally, eliminated as it is seen as detracting from the objectivity of our observations.

[3] Hanson's arguments may apply to other modalities, too, but I will not argue the point here.

On a widely-accepted gloss, to say that experiences are conscious states is to say that they are states there is *something it is like* for one to be in. Seeing has a distinctively visual aspect; it involves being visually struck in some way. 'What it's like,' however, is an umbrella term[5], too broad to capture that aspect: *what it's like* to have an experience can vary with e.g. what items one faces, one's responses to them, and the internal and external circumstances of one's experiencing. Tycho and Kepler may differ in *what it's like* for them to see the sun in some respects, but not in others. Among these some may, others won't help explain the sense in which the two see different things. Moreover, while seeing involves being visually struck in some way, being so struck does not determine what one sees. One can be struck in the same way while facing different objects, and struck by identical objects differently.

To understand how we can visually experience identical objects and yet see different things, something else must enter the equation. Seeings may trigger judgings, but differ from them: we can judge without seeing and *vice versa*. But like judgings, Hanson assumes, epistemically significant seeings must involve concepts. This assumption is central to his account of how two observers can see different things while facing identical objects and of what makes seeing epistemically significant to begin with.

To be epistemically significant, Hanson claims, seeings must be able to bear on our beliefs. Not all seeings are. Peekings through microscopes and starings through windows of moving trains are seeings. But one may be ignorant of what one sees, or stare mindlessly. When Hanson contends that such seeings lack epistemic import, his point is broadly Kantian. Without concepts, Kant famously claims, intuitions are blind (Kant 1968, B 75). Hanson, too, holds that seeings that are exhausted by one's being visually struck remain kaleidoscopic. To intelligibly bear on our beliefs, the purely visual aspect of seeing must be brought under concepts. Here is how Hanson thinks this works: as we observe the items we face, we see them *as* things of certain kinds, *as* having certain properties, and *as* behaving in certain ways. Epistemically significant seeing, he suggests, must involve *seeing as*.[6]

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[4] There is of course a perfectly ordinary sense in which, as they visually relate to the same mind-independent item, both see it. But as they do, there may also be a sense in which they see different things. The latter is what Hanson is after.

[5] The expression goes back at least to Wittgenstein's *Remarks on the Philosophy of Psychology*. It famously figures in Nagel's (Nagel 1974) characterization of conscious states as states there is something it is like to be in (cf. ibid., p. 519) and is widely used. For references and a recent discussion on the semantics of 'what it's like' sentences see Stoljar 2016.

For Hanson, then, epistemically significant seeing must involve concepts and it does so, he thinks, in virtue of involving seeing as. Seeing as, note, differs from both *judging that* and *seeing that*. I can see something as *F* while judging or seeing that it is not *F*.[7] But seeing as and seeing that, Hanson claims, are intimately related: the former is unintelligible without the latter. To see why, we must further explore Hanson's notion of seeing as. Doing so will reveal why, for him, scientific observation must be theory-laden. Relatedly, it will shed light on the sense in which Tycho and Kepler, as they look at the same sun in identical settings, can both see it, both see it as the sun, and yet see different things.

2. Seeing as is intelligible only in terms of seeing that

Consider the following passage:

> (2) There is a 'linguistic' factor in seeing, though there is nothing linguistic about what forms in the eye, or in the mind's eye. Unless there were this linguistic element, nothing we ever observed could have relevance for our knowledge. We could not speak of significant observations: nothing seen would make sense, and microscopy would only be a kind of kaleidoscopy. For what is it for things to make sense other than for descriptions of them to be composed of meaningful sentences? (*PoD*, p. 25)

If nothing about what forms in the eye is conceptual (or linguistic[8]), Hanson claims, what is so formed remains kaleidoscopic – this is the broadly Kantian point we noted already. But if Hanson holds that to make sense and to be relevant for knowledge, seeing must involve concepts and, more specifically, seeing as, where and how do concepts come in? As passage (2) indicates, for Hanson, concepts are operative *in* epistemically significant seeing itself.[9] In such seeing, he insists, visual and conceptual elements are thoroughly blended: "Seeing is, I should almost like to say, an amalgam of the two—pictures and language" (*PoD*, p. 25).[10] Relatedly, Hanson denies that such seeing is a two-stage process:

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[6] Why seeing as? Hanson rejects sense-datum views, on which sense-data are associated with unique meanings that they carry on their sleeves, as it were. Such views are incompatible with what Hanson took to be a fact: identical items, looked at in identical settings, can be seen as different things. I return to the issue in 3.1.

[7] At times we wince while knowing that the charging tiger we face is but a computer-generated 3D simulation.

[8] Presumably, Hanson uses the term '*linguistic*' because like Wittgenstein, he takes thinking to depend on language. For the purposes of this paper, nothing hinges on that assumption. On my reading of Hanson's view, having determinate concepts requires the presence of beliefs involving them that are related to other beliefs in various ways. Accordingly, if the relevant belief contexts can be had independently of language, then so can concepts.

> (3) [O]ne does not first soak up an optical pattern and then clamp an interpretation on it. […] Ordinary accounts of […] experiences […] do not require visual grist going into an intellectual mill: [rather,] *theories and interpretations are 'there' in the seeing from the outset*. (*PoD*, p. 9f., *emphasis added*)

Together, passages (2) and (3) reveal a further aspect of Hanson's view: he construes the intelligibility of seeing in terms of meaningful sentences. Not just concepts, but theories and interpretations are 'there' in the seeing. How so?

It is worth noting that on a broader conception of seeing as, kinds of seeing as may differ not (or not just) in terms of what conceptual classifications they involve. They may also (or only) differ in terms of what reliably differentiated dispositions they help trigger in the subject to engage in kinds of *non-linguistic* behavior. On such a conception, animals (and infants) who may lack both a language and beliefs can be said to see something as food if, upon being visually related to it, they treat it as such, e.g. by eating it. With Hanson, I here focus on a narrower conception. It is intended to apply to mature concept users and it is tied to a notion of epistemic significance for (propositional) knowledge and belief. Accordingly, I assume throughout that to see something as *F*, subjects must have beliefs. That said, I grant that with respect to concept users, too, a full specification of what seeing something as *F* involves very likely requires the specification of dispositions not just to conceptually classify what one faces, but also to respond to it in all sorts of non-conceptual ways, which may in turn be specific to the range of options that one's ways of being embodied afford.[11]

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[9] McDowell (McDowell 1994) argues roughly for a similar claim: in experience, spontaneity, rather than operating *on* receptivity, is operative *in* receptivity itself.

[10] As in much of his discussion, here too, Hanson draws on Wittgenstein's *Philosophical Investigations*.

[11] I thank an anonymous reviewer for pressing me to emphasize this point. The same reviewer helpfully points out that experimental results seem to indicate that infants may possess concepts long before they are able to speak. The notion of concept such studies rely on is less demanding than the notion implicit in Hanson's discussion. I cannot here investigate the differences between various conceptions of concepts. But I take it to be a challenge for the proponent of any such conception that they give a story of how, in the course of our upbringing, we transition from having concepts of the less demanding to having concepts of the more demanding sort.

Given this qualification, what is it, then, to see something as *F*? To see something as *F*, Hanson thinks, a subject *S* must inhabit a belief context *C* in which the term 'F' is linked with other expressions.[12] To have meaning for *S* and to be expressive of a concept, 'F' must play *some* role in *C*.[13] Conversely, if *S* lacked beliefs about *F*s entirely, *S* could not intelligibly see anything as *F* in the first place. Sometimes Hanson suggests that seeing something as *F* is to see that the object may be expected to behave in all the ways *F*s do (cf. *PD*, p. 116).[14] Sometimes he says, more cautiously, that to see something as *F* is to see that, if suitably circumstanced, it does, will, or would (probably) react in ways we take to be characteristic of *F*s.[15] This, then, is Hanson's conception of what links seeing as and seeing that: what *S*'s seeing something as *F* amounts to depends, *inter alia*, on what meaningful sentences (recall passages (2) and (3) above) *S* would deploy in characterizing *F*s and on how *S* takes *F*s to differ from non-*F*s.[16] It depends on what beliefs regarding *F*s *S*'s belief context contains—beliefs such as *every F is G*, *probably H*, *perhaps J*, typically *K*, and *certainly not L*, say.[17] Jointly, such beliefs supply the set of suitable complements for the *seeing that* locution, so that to see something as *F* is, at least in part, to see that it is also *G*, probably *H*, perhaps *J*, typically K, and certainly not *L*. Note that across contexts, *which* beliefs complement the relevant seeing that may vary with what is contextually salient. Also, such complements may, but need not concern actual or possible experiences, nor anything visible (cf. *PoD*, p. 22).[18] Finally, some concepts that instances of seeing as involve may be linked with numerous beliefs. But for such instances to be significant, links to just a few beliefs may well suffice.[19]

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[12] "The appropriate aspect of [an] illustration is brought out by the verbal context in which it appears. *It is not an illustration of anything determinate unless it appears in some such context*. […] The context is part of the illustration itself." (*PoD*, p. 14, emphasis added.) This, Hanson claims, obtains not just in illustrations, but "in all seeing." (*PoD*, p. 17)

[13] The meaning of concepts need not be exhausted by their conceptual role. Tycho and Kepler see the sun as different kinds of thing, though they visually relate to, and refer to, the same physical object. If e.g. reference is partly constitutive of a concept's meaning, Tycho and Kepler's concepts differ in conceptual role, not in reference.

[14] This is too strong. We cannot expect things to behave in ways that go beyond what we know or believe. Thus, expressions of expectations, if they complement the *seeing that* locution, must be constrained by what we believe.

[15] *PoD*, p. 21: "To see fig. 1 as a transparent box, an ice-cube, or a block of glass is to see that it ***is*** six-faced, twelve-edged, eight-cornered;" *PoD*, p. 18: "The schoolboy and the physicist both see that the X-ray tube ***will*** smash if dropped;" for a probabilistic qualification, see e.g. *PD*, p. 112. See also *PoD*, p. 20f.: "What is it to see boxes, staircases, birds, antelopes, bears, goblets, X-ray tubes? It is (at least) to have knowledge of certain sorts. […] It is to see that, ***were*** certain things done to objects before our eyes, other things ***would*** result" (emphases added). Note also *PoD*, p. 24, where he claims that seeing something as something is to see that certain further observations are ***(im)possible***. As these passages indicate, Hanson holds that the intelligibility of concepts operative in seeing as is partly spelled out in terms of (at least implicit commitments to) subjunctive claims. Though I cannot pursue this here, this position puts Hanson in a camp with Kant and Sellars, who, according to Robert Brandom, subscribed to what Brandom dubs the *modal Kant Sellars-thesis*. On one rough formulation of it, "[t]he ability to use ordinary empirical descriptive terms such as 'green', 'rigid', and 'mass' already presupposes [implicit] grasp of the kinds of properties and relations made explicit by modal vocabulary." (Brandom 2008, p. 96f.)

[16] Suppose that upon seeing an unfamiliar kind of object, you decide to call it *F*. *Pace* Hanson, couldn't you now see it as *F*, even though you lack the (allegedly) requisite belief context concerning *F*s*?* "New visual phenomena," Hanson responds, "are noteworthy only against our accepted knowledge of the observable world." (*PD*, p. 109) The ability to single out unfamiliar objects is intelligible only in the context of the ability to distinguish them from familiar ones. This in turn requires (in concept users) that one attribute properties to them that one believes they share with other objects, or, in contrast, lack. Thus, where 'F' is a newly coined term, the context such beliefs constitute and the ability to make or withhold attributions to observable items of the properties referred to in them must be presupposed if both one's ostensive definition and one's subsequent seeing the relevant items as *F* are to be intelligible.

[17] Hanson explicitly allows that meaning-conferring contexts can remain implicit, "'built into' thinking, imagining and picturing." (*PoD*, p. 14) The passage continues (with a nod to the Gestaltpsychologists in a footnote): "We are set to appreciate the visual aspect of things in certain ways." Also: "Such "contexts" are very often carried around with us in

Seeing that, Hanson asserts, "threads knowledge into our seeing" (*PoD*, p. 22; *PD*, p. 107; also the passages quoted in fn. 15). The importance of knowledgeable beliefs is something we shall consider shortly. First, though, note that some of the beliefs one holds with respect to e.g. *F*s may be false, even irrational. Accordingly, in seeing something as *F*—and thus in taking oneself to see that something, *p*, say, is, could, or might be the case—one can be mistaken. 'Seeing that' is factive; one cannot see that *p* unless *p* is the case. But into seeing as, something besides true belief can be threaded as well: mere belief. To acknowledge this fact allows us to explain how Tycho and Kepler can see different things, even though both look at the same object and see it as the sun. Consider the following passage:

> (4) Seeing the dawn was *for Tycho* […] to *see that* the earth's brilliant satellite was beginning its diurnal circuit around us, while *for Kepler and Galileo* it was to *see that* the earth was spinning them back into the light of our local star. (*PoD*, p. 20, *emphases added*)

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our heads, having been put there by intuition, experience, and reasoning." *PD*, p. 100. It thus must be acknowledged that at least in part, the requisite context may depend on commitments that remain implicit and may be present in form of dispositions to apply concepts in certain ways, or in certain contexts, but not in others.

[18] In some cases one may, in a sense, see that if *x* happened, *y* would, too. "If I moved my hand a little closer to this rabid dog's snarling muzzle, I would surely lose a finger or two, don't you see?" In contrast, seeing a certain mark on a black board as a 3 may involve, *inter alia*, seeing that adding 1 to it would yield 4. Lest we uncharitably think that Hanson credits us with perceptual access to modal contexts, what seeing that threads into seeing need not itself pertain to something visible, but can comprise beliefs, including knowledgeable ones, that the seeing subject would readily affirm if prompted. Indeed, 'seeing that', in such contexts, will often be best understood not as referring to a specific kind of seeing, but as introducing a belief that the subject (or the one attributing seeing as) takes to be knowledgeable.

[19] See again fn. 16. Sometimes, how concepts operative in seeing differ comes out not in what one would or could say about them, but in their application. Suppose you are looking at an eye chart through a manual refractor, while the oculist who assesses your eye-sight keeps exchanging the lenses. In the course of your subsequent experiences your experience differs in terms of blurriness. Generally, Hanson will hold that seeing things as (more or less) blurry, or self-consciously seeing them more or less blurrily, is intelligible only against the backdrop of belief contexts in which 'blurry' is related in various ways to further beliefs, and that, presumably, imply that blurriness comes in degrees. Self-consciously seeing the chart more or less blurrily can be an epistemically significant experience, may even involve attributing 'blurriness' to something – e.g. the object seen or one's experience. Also, one can issue judgments based on subsequent visual experiences due to how blurrily one sees things while undergoing them. At the same time, there may not be much one is able to say about what is distinctive of these various experiences. I thank Alessandra Buccella for urging me to comment on such cases.

Tycho's view was geocentric; Kepler's, like ours, was not. Still, *for Tycho*, given what he thought he knew, seeing the sun at dawn as the sun was to see that the earth's brilliant satellite was beginning its diurnal circuit around us, and he would affirmed as much if asked. For Tycho's belief context was crucially shaped by his belief that the sun revolves around the stationary earth. Failing to acknowledge this is failing to grasp what thing, in seeing the sun, he saw. As Tycho's and Kepler's belief contexts differed, so did what to them the concept sun meant. This in turn imbued their experiences with differing epistemic significance.[20] This is the sense in which for Hanson, theories are there in the seeing: Tycho and Kepler saw the sun as the heavenly body that figured in their respective theories. Since their theories differed, they saw different things, though they looked at the same sun and the visual aspect of their experiences may have been identical.

To sum up: siding with the broadly Kantian idea that epistemically significant seeing must involve concepts, Hanson suggests that such seeing involves seeing as. Further, he holds that for any concept ψ to be intelligibly operative in some S's seeing something as ψ, a context C must be present that is constituted by S's beliefs about things that are ψ. C in turn determines what S takes such things to be and what else S takes *being* ψ to entail, require, or be incompatible with. And if, as in scientific observation, C contains theories about ψ-ish things*,* Hanson's claim follows: scientific observation, construed in terms of seeing, must be theory-laden.[21]

Let us next return to Hanson's claim that seeing that threads knowledge into our seeing. This assumption, he holds, is presupposed in our ordinary practice of attributing states of seeing:

> (5) [What must] have taken place for a man to be described as seeing a […] spirochete; unless a person had had at least one visual sensation and *knew* what a spirochete was [and, as Hanson adds

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[20] Also, the extent to which Tycho and Kepler share theories is the extent to which they see the same. (Cf. *PoD*, p. 18.)

[21] Two clarifications: First, some (e.g. van Fraassen 1980) characterize theories not as sets of beliefs, but as families of models. Still, if proponents of such views grant that proponents of different theories hold different beliefs, Hanson's point can be easily restated. Second, what makes seeing epistemically significant in general need not be *theory*-ladenness. For many ordinary concepts – e.g. sister, pain, or rose garden – it would be absurd to hold that such concepts cannot be intelligibly operative in seeing unless a corresponding *theory* were held. If taken to entail that we need to hold e.g. some theory of pain to intelligibly attribute pain to others or express that we are in pain, such a view might imply a dubious conception of psychological and other ordinary concepts (for discussion, see Hacker & Bennett 2010, ch. 13). Hanson's claim, I think, is that epistemically significant seeing must be *concept*-laden, and that only scientific observation must be *theory*-laden proper. For simplicity, I will stick with the term 'theory-ladenness' and add that whether a given concept is observational or theoretical and whether what is required for its mastery (and for one to be knowledgeable) includes that one hold a theory proper will vary with concepts, contexts of use, and linguistic communities.

> elsewhere, what it looks like (e.g. *PoD*, p. 21)], we would not say that he had seen a spirochete. (*PD*, p. 112, *emphasis added*)

In attributing to you that you see an apple I may just convey that you are visually related to one, awake, not drugged, etc. In doing so I need not assume that you know anything. Such minimal attributions, while possible, are rarely called for. At any rate, Hanson's claim is not about them, but about attributions of epistemically significant seeing. Applied to our example, his claim is that I cannot intelligibly attribute to you that you see an apple as an apple unless I assume that you hold enough apple-related beliefs that I, too, accept as knowledgeable.[22] We may assert that Tycho saw the sun as the sun while acknowledging that some of his sun-related beliefs were false. Yet had *all* of them been false, so would have been those that serve to differentiate the sun from other objects. Thus, lest we render it completely indeterminate what we are attributing to Tycho in stating that he saw the sun (as the sun), we cannot assume that all his sun-related beliefs were false. For such attributions to make sense, we must take at least some of his sun-related beliefs to be knowledgeable by our own lights.[23]

This holds regardless of the perceptual situation. Ordinary cases of *S*'s seeing something as red will be cases of *S*'s seeing something red, of *S*'s seeing (and coming to know) that it is red, that it is colored, and, depending on *S*'s background knowledge, perhaps yet further things. What about other cases? Consider the following objection raised against Hanson by Peter Achinstein: when *A* playfully sees a cloud as a horse, *A* cannot see that, if suitably circumstanced, it would act in ways we know horses do (cf. Achinstein 1972). If 'seeing that' is factive, Achinstein is right. But that does not entail that playful seeing as involves no seeing that at all. Surely, if *A* playfully sees a *cloud* as a horse, *A* will also see it as a cloud (hence the playfulness). *A* will see that if suitably circumstanced, the cloud will behave as *A* knows clouds do. Also, to playfully see a cloud as a *horse*, *A* must see that if it were one, it would be what *A* knows horses are and, if suitably circumstanced, behave as *A* knows horses do.[24] Finally, suppose *A* has an illusory or hallucinatory experience as of a horse. Both illusions and hallucinations involve ways in which their subjects are struck visually, though in hallucinations, no physical object may do the striking.[25] But in such cases, too, *A* will see, or seem to see, something as something. If seeing something as *F* requires the presence of a context that involves at least some knowledgeable beliefs, so will the corresponding seeming, regardless of whether *A* visually relates to what she seems to be seeing, to some other object, or to nothing at all.[26] Again, we cannot assume that none of *A*'s *F*-related beliefs is knowledgeable and still ascribe to *A* that she sees (or seems to see) something as *F*. Likewise, if all *my* beliefs about *F*s were false, expressions purporting to refer to my seeing something as *F* could not pick out anything determinate I could be doing. If so, Hanson is right: we cannot intelligibly ascribe some determinate seeing as to anyone (including ourselves) unless we also ascribe commitments to them that we, too, consider knowledgeable. In this sense, seeing as requires seeing that and is unintelligible without it.[27] This concludes my analysis of Hanson's second claim. Next, let us consider the third: through seeing as, theories can affect one's visual field.

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[22] Taking attributions of seeing that to be governed by what we *take* to be facts is more plausible than imposing a stronger factivity requirement on such attributions, one met only if the complements express facts that actually obtain.

[23] Hanson observes that some of the knowledge *seeing as* requires is "of a rather more logical nature […]. [W]e should not say of anything that it was a physical object […], were it not locatable in space or itself a tangible, space-occupying entity; nor should we say of any physical object that it is a cube unless it is six-faced, twelve-edged, and eight-cornered. On the other hand, that liquids and gases (*per se*) are not suitable for the formation of boxes and cubes and rigid frames is something we must learn from experience in a way rather different from the ways in which we gain our knowledge about what *objects* and *cubes* are." (*PD*, p. 113) If Hanson is right, then some beliefs regarding physical objects are not only more modally robust than others, but express facts concerning what something *must* be to be a physical object at all. Though I cannot pursue this here, it may be that for many concepts, there are beliefs one *must* have or to which one must at least implicitly be committed to have the concept at all. It may also be that certain kinds of such commitments *must* be in place for one to count as having *any* concept at all. Arguably, these are questions any account of concepts faces and Hanson is under no special obligation to address them. Yet his remarks indicate that he is well-aware of them.

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[24] Two remarks: first, 'seeing that', in this context, is not to be understood as introducing a specific kind of seeing (see also fn. 18). Second, note that here again, what complements the seeing that locution is a *subjunctive conditional*. As e.g. Sellars 1948 and following him Brandom (e.g. in Brandom 2015) have argued, such conditionals express modally robust commitments. Construed as complements of 'seeing that,' they tie the concepts operative in seeing to modally robust commitments explicitly or implicitly contained in the subject's belief context. These may include, *inter alia*, commitments to what the subject takes to be laws and lawlike generalizations governing the things she thinks she sees.

[25] The plausible assumption that visual hallucinations involve a visual aspect is not universally shared. However, Fish (Fish 2009) takes hallucination to lack phenomenal character and thus rejects it.

[26] Consider the Müller-Lyer. Upon first exposure, we typically see it as featuring two unequal lines. Doing so will involve seeing that, if things were the way we see them as, we would be able to measure a difference in their length. But seeing what we know to be an instance of the Müller-Lyer illusion as featuring two apparently unequal lines is compatible both with seeing that if we were to measure the lines, we would discover that they are equal in length and with seeing that we would detect a difference in length if the lines were the way we see them as. We may be unable to see the lines of the Müller-Lyer as anything but unequal in length, while we typically do not find it difficult to stop seeing a cloud as a horse, or to see it as not horse-like, e.g. by focusing on relevant dissimilarities. Perhaps there are limits to the extent to which the ways we are set to see things as can be modified (relatedly, see fn. 7 above).

[27] Again, the required commitments may be partly implicit, perhaps even entirely. Depending on the expressive power of their language, subjects may be unable to thematize commitments to the material or subjunctive conditionals that

3. Through seeing as, beliefs can affect one's visual field

So far, our discussion focused on Hanson's claim that epistemically significant seeing must involve concepts. No special attention was paid to the purely visual aspect of seeing. Until now, 'theory-ladenness' may thus appear like a label primarily for semantic relations that constitute the meanings of concepts within belief contexts, especially those concepts that can feature in instances of seeing as. But for Hanson, theory-ladenness can also take other forms: beliefs can affect the purely visual aspect of seeing itself, an aspect that Hanson typically refers to by using the phrase 'visual field and its elements.' Sadly, he provides no full characterization of this phrase. He clearly endorses the idea that seeing has what he calls a pictorial dimension. At the same time, he explicitly rejects sense-datum accounts. In what follows, I first sketch what Hanson finds objectionable in sense-datum accounts: not the idea that seeing involves a pictorial dimension of sorts that is given to us through the senses, but a certain conception of what role the visual field could play (3.1). Next, I present his view that beliefs may affect the organization of the visual field and how it coheres (3.2) and, finally, that via projection effects, they may affect the visual field itself (3.3).

3.1. What's Wrong with Sense-Datum Accounts

In many places, Hanson forcefully opposes sense-datum accounts (see esp. *PD*, ch. 5). However, sometimes he sounds less hostile towards the idea of sense-data, e.g. in the following passage:

> (6) If Tycho and Kepler are aware of anything visual, it must be of some pattern of colours. What else could it be? […] This private pattern is the same for both observers. […] what they really see is discoid to begin with. It is but a visual aspect of the sun. In any single observation the sun is a brilliantly luminescent disc, a penny painted with radium.
>
> So something about their visual experiences at dawn is the same for both: a brilliant yellow-white disc centred between green and blue colour patches. Sketches of what they both see could be identical—congruent. In this sense Tycho and Kepler see the same thing at dawn. The sun appears to them in the same way. The same view, or scene, is presented to them both. (*PoD*, pp. 7-8)

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would serve to articulate the role their concepts play. *Material* conditionals, incidentally, encode commitments to inference rules that allow transition from 'is F' to 'is G', 'is not J', etc. *Subjunctive* conditionals, in contrast, encode commitments to rules that are modally robust across a range of contexts. For an investigation into the expressive role of material and subjunctive conditionals see e.g. Brandom 2008, 2015. Note that such commitments come in different modal flavors and may include commitments to laws of nature, a priori principles, moral, aesthetic, epistemic, or semantic norms. An interesting question, albeit one that I cannot here address, is whether there are some commitments that must implicitly govern anything that can count as a linguistic and perceptual practice.

"[O]ur visual consciousness," Hanson holds, "is dominated by pictures;" "[v]ision," he claims, "is essentially pictorial." (*PoD*, p. 25) Occasionally, he even refers to the pictorial aspect as what is seen in the sense-data sense of seeing.[28] He also asserts that sometimes, the phenomenal language employed in (6) is appropriate: in the oculist's office or if, in the lab, one lacks detailed knowledge of what one sees. Plausibly, both Kepler and Tycho could agree on a characterization of the sun, or of sketches thereof, in such terms. It is important to note, however, what for Hanson such agreement indicates. It indicates that the contexts that Kepler and Tycho inhabit are similar enough for them to use phenomenal terms in sufficiently similar ways. It does not, however, force us to endorse a two-stage account of seeing, on which both are first aware of the same mental image, already characterized in phenomenal terms, on which, second, they put different interpretations. If true, the two-stage account would have to be true of seeing reversible figures also. But we do not typically see such figures in ways characterizable in purely phenomenal terms. Coming to see them in such a way, if possible at all, requires tremendous effort. Phenomenal seeing, Hanson claims, is atypical, not the paradigmatic case on which all seeing must be modeled.[29] Two-stage accounts, he thinks, are inaccurate quite generally:

> (7) Is the physicist doing more than just seeing? No; he does nothing over and above what the layman does when he sees an X-ray tube. […] One does nothing beyond looking and seeing when one dodges bicycles, glances at a friend, or notices a cat in the garden. (*PoD*, p. 16)

Sense-datum theorists, Hanson thinks, work with a misguided conception of what paradigmatic cases of seeing are. They focus on cases in which we do not see things as what they are and hope to find "something pure and unadulterated by inference or intellect" (*PD*, p. 114) that we get right even in such cases.[30] In doing so, he claims, they ignore the wide range of cases wherein we are in fact right in our observations (cf. ibid.). Furthermore, he takes it that the thought that there must be something purely visual that different observers who are placed in identical settings are bound to share rests on the hope that one could find, in this shared something, a certain ground for knowledge. Yet for Hanson, this hope is confused. For he would insist that only epistemically significant experiences can intelligibly be mistaken or correct, i.e. only instances of seeing as (or corresponding seemings) and, hence, something in which intellect and inference will already have been involved. As we saw, for Hanson, it is through its inferential relations with other concepts that the concepts involved in one's seeing as become determinate. The notion of correctness can get a grip only if some such determinate concepts are involved. And if Hanson is right, then even in seeing something as what it is not, one's belief context must contain knowledgeable beliefs as well. We may get things wrong, perhaps frequently so. But doing so is intelligible only in contexts in which we also get some things right.

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[28] About congenitally blind patients who post-surgically learn to see, Hanson asks: "Of course, these people can see in the sense-datum sense [sic!] of "see," but can they see anything?" (*PD*, p. 151) Clearly, he wants to elicit agreement with the first, disagreement with the second half. Such patients have visual experiences, but it takes a long time for them to *see* objects *as* anything. Hooking up the visual aspect of seeing with our knowledge is a complex and arduous process.

[29] See also *PoD*, 20, and *PD*, p. 150: "It [phenomenal observation] is something we must develop from our ordinary sorts of seeing, and not that from which our ordinary sort of seeing is developed." Like Bacon, who advocated freeing the mind from the *Idols of the Tribe*, Hanson holds that *phenomenal seeing*, while atypical, can be useful for getting rid of preconceptions or for arriving, ultimately, at new ways of seeing. Cf. also *PD*, p. 109, pp. 111-2. For Bacon on idols of the mind, cf. Klein 2015, esp. section 3.1.

According to Hanson, thus, whatever sense data or visual somethings epistemically significant seeing may involve cannot possibly ground knowledge from scratch. That epistemically significant experiences require the presence of knowledgeable beliefs undercuts the foundationalist motivation for insisting that in relevantly similar settings, the visual aspect of a subjects' seeings must be intersubjectively stable. For the subject to epistemically capitalize on the visual aspect concepts and beliefs, including knowledgeable ones, must already in place.

Again, Hanson neither rejects that seeing has a visual aspect, nor that we may talk about it in terms of images. Whether such images must be intersubjectively stable is a legitimate question to raise. Also, what role to attribute to them is something we must consider. Before we do, let us observe how, according to Hanson, this aspect may be influenced by beliefs.

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[30] Hanson focuses on seeing objects as things of some kind or other. But complements of 'seeing as' need not be limited to names of things. We can see something as e.g. red, blobby, flashlike, x-shaped, as instantiating or involving certain processes or relations, as beautiful, or wrong.

3.2 The organization of the visual field

Consider the following passage. In it, Hanson draws on the duck-rabbit figure and on a well-known passage from Pierre Duhem that serves to contrast what an untrained visitor to a physicist's lab sees with what the physicist sees (cf. Duhem 1954, p. 218):

> (8) The elements in his [the visitor's] visual field, though perhaps similar or identical to the elements of the physicist's visual field in color, shape, arrangement, etc., are not *organized conceptually* for him as they are for the physicist. And this is much the same situation as we find when both you and I gaze at [a depiction of the duck-rabbit] but I see a rabbit and you see a duck. The *conceptual organization* of one's visual field is the all-important factor here. It is not something visually apprehended in the way that lines and shapes and colors are visually apprehended. It is rather the *way* in which lines, shapes, and colors are visually apprehended. (*PD*, p. 104, *emphases added*)

Though we lack a precise account of it, let us accept Hanson's talk of visual fields and its elements. What is it for such elements to be *organized*? The plot of a story, Hanson points out, is not another detail of it, nor is the tune of a musical piece just another note. And as passage (8) reveals, the organization is not an element of the field nor something that can be seen (cf. also *PoD*, p. 13; *PD*, p. 95).[31] It is a way in which things are visually apprehended conceptually.

To explicate Hanson's talk of *ways of apprehending* and *conceptual organization* we can draw on our previous discussion: to see something as the sun from Tycho's perspective is to apprehend it one way, to see it from Kepler's is to apprehend it in another way. Seeing the duck-rabbit as depicting a duck or a rabbit involve different ways of apprehending it. To say that the same item can be apprehended differently is to say that it can be seen as different things. Ways of apprehending objects typically involve expectations as to how they behave in different circumstances and how, were we to perform in certain ways with respect to them, they would in turn perform (cf. *PD*, p. 150). Accordingly, to say that the context set up by one's beliefs organizes the elements of the visual field conceptually is to say that it situates these elements in a space of expectations concerning how the visual field may change.

Differences in conceptual organization may yield further effects, e.g. *selection effects*. We rarely attend to the space between the leaves of a tree (*PoD*, p. 17) or to our own noses and cheeks (*PD*, p. 152), even though surely, in almost all seeing, the latter help generate our visual field. Moreover, whenever leaves leave their marks on a subject's visual consciousness by figuring, *in* our experience,[32] as elements in the visual field, then so will the spaces between them. Selection effects concern what is and is not perceptually foregrounded (cf. *PD*, p. 92), which aspects of what we face are "thrown into relief" as salient (*PD*, p. 104) or ignored. "[T]he identity badge of every modern scientist," Hanson thus quips, "consists of those things he ignores among his visual data" (*PD*, p. 152).[33]

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[31] Searle 2015 argues that only real world objects can be proper objects of one's experience, ontologically subjective entities, however, cannot. This view, too, is compatible with the idea that both seeing real world objects and hallucinating are conscious experiences that consist in having one's visual field be populated with elements.

A different effect concerns how the elements of one's visual field "pull together" (*PD*, p. 94) or "cohere" (*PoD*, p. 13; *PD*, p. 103). Imagine seeing an unidentified object, some of whose parts are visible, others covered in mist. As we recognize it, things snap into place, its visible parts pull together and form a coherent and unified whole, whereas previously, they may have seemed randomly juxtaposed. In seeing reversible figures, too, the elements of one's visual field will cohere in different ways, relative to how one apprehends them. And it may well be that as one becomes an expert, the way the objects of one's expertise cohere may differ from how they did when one was a layperson.

Such effects, Hanson admits, are difficult to place. At times he suggests that when we transition between ways of seeing reversible figures, "[n]othing optical or sensational is modified" (*PoD*, p. 12). Even if we see the figure differently, in both cases, our sense-datum pictures "must be the same" (*PoD*, p. 11). Yet he is also tempted to say that upon recognizing what we face, our seeing is so thoroughly transformed that the visual field *itself* must have changed. With Wittgenstein, Hanson suggests, one might argue that the duck-rabbit figure, if seen as (depicting) a duck, has not the slightest similarity with the same figure seen as (depicting) a rabbit (cf. *PD*, p. 98; *PoD*, p. 13). Does cohering differently amount to a change in visual phenomenology or are such changes just in the taking? Sense datum theorists may be mistaken in what epistemic role they assign to the visual aspect. Pending an answer to this question, the claim that beliefs affect the conceptual organization of one's visual field could still be compatible with the idea that the visual aspect remains stable across different conceptual organizations. But as we will see next, Hanson not only believes that one's beliefs can modify the elements of the visual field themselves—but that sometimes, they in fact do.

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[32] See *PoD*, p. 15: "Elements *in our experience* do not cluster at random" (*emphasis added*).

[33] What counts as salient or significant may change along with one's theories and the development of new technologies. A well-known example concerns the Golgi apparatus. Although discovered by Camillo Golgi as early as 1898, for more than 50 years, many scientists suspected that what we now take to be a *bona fide* cell organelle was a mere artefact of staining techniques. Only after the introduction of the electron microscope the controversy abated. See Farquhar & Palade 1981 for details and further references.

3.3 Effects on the elements of the visual field

That objects can be seen differently, Hanson claims, is something philosophers must accommodate. Why such differences obtain, and how they arise, psychologists must address (cf. *PoD*, p. 17).[34] Can the visual field be modified by the subject's beliefs?[35] Hanson responds that "we can do no better here than to review some of the findings of experimental psychologists […] [who] rush in where philosophers fear to tread" (*PD*, p. 158). After surveying some such findings, he concludes:

> (9) Many experiments have shown how, e.g., the shape, size, color, and position of objects are, as it were, "projected" onto them by the observer. The perception of color and shape depends not alone on the thing looked at but partly on past experience of the color and shape of similar and dissimilar things. (*PD*, p. 152)

The term '*projected*' is suggestive. If we take it seriously, it might not just be the actual color, size, etc. of what one faces that constitute the visual field. Rather, what color, size, etc. one sees things as having could be modified by subjective factors. Hanson cites past experiences, not beliefs, as what may cause such projection effects. But one way for past experiences to modify current experience could be via the subject's (implicit) beliefs and expectations that the former helped shape, which in turn could then bring about the relevant modification in experiential phenomenology.[36]

Some of the findings Hanson cites (cf. *PD*, ch. 9) have since been criticized. In today's discussion, too, it is controversial what effects on the phenomenology of seeing do in fact occur. But conceivably, as e.g. Hansen et al. claim, one's knowledge, beliefs, or memory of the typical color of bananas could bring it about that a depiction of an achromatic gray banana still strikes one as slightly yellow.[37] And if biased subjects who are primed with pictures of black men tend to classify ordinary tools as guns,[38] this, too, could be due to a change in the visual aspect. Generally, how things visually strike one might in part depend on what one sees things as, on what context one's being suitably primed makes salient, and on the expectations it contains as to what may happen next.

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[34] Since on Hanson's account, such differences will partly rest on differences in subjects' belief contexts, psychologists may furnish explanations why people hold certain beliefs and explore whether, and how, holding certain beliefs, having undergone certain kinds of experiences, or kinds of training, may dispose subjects to single out certain objects or features as significant—in short: why subjects are set to see things in certain ways.

[35] Many of Hanson's remarks on this issue are guarded. Recall e.g. passage (8): it is only *perhaps* that the elements in the visitor's field are similar or identical to those populating the physicist's. But cf. *PoD*, p. 17, where Hanson seems to grant that the elements of their visual fields are identical.

[36] Note that the idea that cognitive states can serve to generate experience is not as uncommon as one might suspect. Indeed, the idea is central to an influential set of contemporary accounts within the cognitive neurosciences that are typically subsumed under the label *predictive coding*. For discussion and further references see e.g. Hohwy 2014, Lupyan 2015, and Macpherson 2015 and 2017 for critical discussion.

No logical reason forces us to rule out that such projection effects may occur and it is surely not the philosopher's task to settle empirical questions in advance. And if many psychological experiments can be (and indeed are) interpreted as involving projection effects, accounts of visual experience had better not rule them out as impossible, but instead show how we can accommodate them. It is a virtue of Hanson's view that it purports to do so. Let us examine next whether it also accommodates the idea that observation can anchor and constrain our beliefs.

4. Does observation constrain our beliefs?

Given Hanson's stance on what forms theory-ladenness may take, one may suspect that his view provides little room for the idea that visual experience has objective import, constrains our thinking, and anchors it to the world. Is observation a less than objective guide to how things are? Might it not confirm our prejudices—especially when the beliefs we want to test against our experience are among those that affect it? Aware of such concerns, Hanson concedes that the visual facility with which we see, notice, and observe familiar things has its price:

> (10) For it [the visual facility] does incline us sometimes to overlook certain discrepancies between what is there to be seen and what we ourselves see. By its use, as by the use of any efficient adaptation to our environment, we can occasionally go wrong. (*PD*, p. 153)

However, to make this concession is not to give up the idea that observation can exert empirical constraint. In this context, Hanson's remarks on illusions and conjuring tricks are instructive:

> (11) We see only what we know, that is what makes conjuring tricks possible. Deceptions must proceed by an exploitation of what is the normal, ordinary case. […][T]hat a sleight-of-hand artist can get our minds and our eyes, i.e. our *seeing*, moving in one direction while catching us out in

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[37] See Hansen et al. 2006, Olkkonen et al. 2008.

[38] Cf. Payne 2001. There is a large body of psychological literature and a lively philosophical debate about whether such cases, often subsumed under the label 'cognitive penetration', do in fact occur. For discussion, see e.g. Siegel 2012, 2015, 2017; Stokes 2013; Raftopoulos & Zeimbekis 2015. For criticism, see Scholl & Firestone 2016.

> another direction is a clear indication of the way our SEEING usually proceeds. It is because our thoughts are so intimately a part of seeing that we must sometimes rub our eyes at illusions. (*PD*, p. 115)

For us to be subject to illusions, passage (11) indicates, our belief context must contain robust expectations as to how, in certain situations, our visual field may change. They may be off. But when they are frustrated, we can of course realize it:

> (12) [W]hen we have seen the conjurer saw the young lady in half, we are no longer at liberty to see this as an ordinary case of […] *dis*-joinery. We cannot see the conjurer's saw as an ordinary saw, nor his actions as those of an ordinary woodsman, nor the situation as an ordinary case of sawing, if when he is finished with his work the young lady smiles and waves gaily while happily kicking her feet. And when we say we cannot believe our eyes in such a case, we indicate that seeing things as we saw them originally was just to *see that* certain things could not follow. (*PD*, p. 116)[39]

Seeing is corrigible, "which everyone would happily concede." If the behavior of what we see as *F* diverges from "what we expect of [*F*s,]," Hanson claims, "we may be blocked from seeing it as a straightforward [*F*] any longer" (*PoD*, p. 22; similarly: *PD*, p. 116). The possibility of such divergence, I submit, is all it takes for our seeing to be able to constrain our world-directed thinking. On the assumption that the belief contexts we inhabit fully determine our visual field, by forcing it to conform with our expectations, the idea of empirical constraint is lost.[40] But if changes in the visual field can defy our expectations, the idea is saved. Importantly, though, such changes cannot exert empirical constraint by themselves. We must apprehend them as divergent. To exert empirical constraint, seeing must be epistemically significant. It must, Hanson would insist, be seeing as.

Such changes alone, even if apprehended, also cannot settle whether or how to modify our beliefs and concepts. Suppose that while facing what you see as (an) *F,* you notice something unexpected about it. Doing so could block you from seeing it as (an) *F* any longer; perhaps you even decide to drop the concept F altogether. Alternatively, you could decide to revise your concept of *F*s to accommodate that *F*s sometimes do behave in ways you had not previously envisaged. Finally, you may not know how to respond, suspend judgment, keep observing, and search for new intelligible ways of organizing what you see. Which response is called for depends not just on what items you face, nor just on the visual aspect of your experience, but crucially on the belief context you inhabit and on how modally robust you take your frustrated expectations to be. We could barely keep seeing something as a piece of gold if we saw it melt at 100° F. But depending on our beliefs, we may keep seeing a celestial body as a comet even if it takes an unexpected turn, or our friend as kind, even as we see her commit what looks like a malicious crime. Generally, it will not always be obvious how to integrate what we see with our beliefs. Sometimes there may be only one rational option. But that need not be so in general.

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[39] In such a case, correcting one's view is triggered by the realization that one did not in fact see what one thought one did, but that one was mistakenly taking oneself to see that certain things could or could not follow.

[40] The idea that our visual field is fully determined by our explicit and implicit beliefs, while highly counterintuitive, is not *logically* defective. However, motivating and defending an account of experience that incorporates it, while retaining the idea that experience plays a vital role in our epistemic endeavors, or alternatively, an account that shows why the latter idea is mistaken, is a daunting task and I think that there is no particular onus on Hanson to show that it is impossible. It is, incidentally, compatible with Hanson's view that *some* aspects of our visual life *are* systematically determined by what we believe. But to entertain this possibility is neither to say that we could not find out that it is actual, nor to deny that visual experience itself could play an important role in doing so.

On Hanson's view, the relation between beliefs and the world is anything but simple. Seeing what we face as what it is is a remarkable ability, acquiring it a significant conceptual achievement. For many (but not all) items, especially those populating our scientific theories, mastering this ability may require that we overcome dispositions to apprehend that are shaped by (perhaps subtly) false beliefs and expectations that are deeply entrenched in our overall view of the world. Such dispositions may make us ignore what should be salient, make things cohere in odd ways, or make us project into the visual field elements or features it would not otherwise contain. Coming to see not what we expect but what is there to be seen is a difficult, perhaps an ongoing task. Sometimes it may be helped by bracketing our expectations, by paying close attention to details, and by characterizing what we see in phenomenal terms to find new ways of organizing the phenomena. Improving our view may well require time and effort. "[T]hirteen centuries of expert observation failed to disclose the error in Galen's contention that the septum between the ventricles of the heart is perforated" (PD, p. 168).[41] The need to improve our view may be triggered by reflection. But often, it will be triggered by the fact that the visual aspect of our experience develops in ways that defy our expectations and thus make it rational to issue judgments that in turn require us to revise our beliefs. In sum, on Hanson's view, empirical constraint is possible and mediated via the visual aspect of experience. He thus accommodates both ideas mentioned at the outset: scientific observation, though necessarily theory-laden, plays a vital role in constraining our beliefs and in anchoring them to the world. Let us now turn to how Hanson's view fares if compared to contemporary alternatives.

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[41] Correcting our flawed views is hard to do *solo*. Even as a *social* task it can be laborious and time-consuming.

5. Relationalism, Standard Representationalism and the Rational Role of Experience

Representationalists affirm, while relationalists deny, that (visual) experience involves representation.[42] Instead, relationalists construe perceptual experience as a relation of direct awareness—commonly dubbed *acquaintance*. This relation is said to obtain between subjects and mind-independent items, from a point of view, where 'point of view' serves as a label for a variety of factors, e.g. physical location, lighting conditions, distribution of the subject's attention, and visual acuity.[43] In virtue of bringing mind-independent items "into the subjective life of the perceiver,"[44] experience is said to enable us to demonstratively refer to them and, some claim, yields a basic kind of non-propositional knowledge: knowledge by acquaintance.[45] Finally, relationalists standardly hold that the purely visual aspect of experience—variously referred to as its qualitative or phenomenal character, as the appearances or looks experience involves, or as *what it's like* to undergo it—is solely constituted by the mind-independent items with which it relates the subject, relative to the subject's point of view, specific conditions of perception, the distribution of the subject's attention, and, perhaps, features of the perceptual relation itself.[46] As per an oft-quoted passage by John Campbell

> (13) [o]n a Relational View, the phenomenal character of your experience, as you look around the room, is constituted by the actual layout of the room itself: which particular objects are there, their intrinsic properties, such as colour and shape, and how they are arranged in relation to one another and to you. (Campbell 2002, 116; similarly Fish 2009, ch. 1; French 2014, pp. 395-6; Logue 2012, p. 212; Martin 1998, pp. 173-5)

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[42] Many take the two views to be incompatible, for dissent, see e.g. Nanay 2014, Schellenberg 2014, and McDowell 2013.

[43] The term 'acquaintance' goes back at least to Bertrand Russell. Whereas Russell maintained that experience acquaints us with sense-data, relationalists think that it acquaints us with mind-independent items. Relationalists disagree on what these items are. Fish, for instance, takes them to be objects-property couples (Fish 2009), Brewer objects (see Brewer 2011, 2018), and Genone mind-independent appearance properties (Genone 2014).

[44] For this way of expressing things, see Campbell & Cassam 2014, ch. 1.

[45] See e.g. Genone 2014, 34; cf. also Brewer 2011, ch. 5 & 6 for an attempt to spell this out.

[46] See e.g. Campbell 2009; Campbell & Cassam 2014, ch. 2. See also Brewer 2011, ch. 5, who suggests that the acquaintance relation, e.g. in cases of blurry vision, can be degraded.

Since experience, on this view, does not involve any kind of representation, experience itself cannot be accurate, inaccurate, or erroneous. Accordingly, if in responding to our experience we go astray, the mistake lies in what we make of our experience—experience itself cannot be blamed.[47]

For Hanson, this sketch of the relationalist position would have to give rise to several questions. First, if experience involves a phenomenology, but no representation, how can it be anything but kaleidoscopic? To be epistemically significant, to be relevant for knowledge, experience must somehow be hooked up with concepts. But how? This question can be read in at least two different ways. One: how can (non-representational) experiences of mature concept users serve as rational inputs to their experiential judgments? How can such experiences serve as grounds or rational warrants for judgments? Two: how do the phenomenal and the conceptual get hooked up in the first place? How does an experience with a certain phenomenal character come to be an experience as of red, round, or square, say, and can the relevant associations be modified?

If relationalists have tried to address the former question, then so far, no consensus has emerged. For Hanson, on the other hand, the question has a straightforward answer, one that does entirely without the notion of acquaintance. For if experience involves seeing as and, as such, concepts, it seems clear how perceptual judgments could be based on it: given what one sees things as, one may judge that things are the way one sees them, or refrain from doing so, depending on what further beliefs one harbors about the situation at hand.[48] As for the latter, more general question, like proponents of *any* account of perceptual experience, Hanson, too, owes us an account of how the phenomenal and the conceptual get connected or, as he might phrase it, of how the pictorial and the conceptual become amalgamated in the first place. But it is worth noting that once some such account is in place, Hanson's account provides ample resources to explain how the associations between the phenomenal and the conceptual can be modified. Given what we know about gold, a piece of metal we initially see as gold can no longer be so seen once we see part of it melt at 100º C. Likewise, given what we believe about what the conjurer from our example is able or willing to do, we can no longer see his actions as ordinary acts of sawing. And perhaps, if we (knowingly) put on color-inverting goggles, we may, after a while, begin to again see green items as green right away, even though prior to putting on the goggles, the phenomenal character of our experience of these items used to be associated with seeing red items.[49] If we call the sum of context-relative links between a concept and various visual aspects that concept's *phenomenological profile*, Hanson's account thus provides some resources to explain how phenomenological profiles can be enriched or modified along with our beliefs about the world, ourselves, and our perceptual conditions.

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[47] Accordingly, Brewer 2011 and Genone 2014 both suggest that the claim that perceptual experience cannot be erroneous is one main respect in which relationalist and representationalist accounts differ.

[48] Recall that we can see things as what we know and believe they are not.

A second question concerns how to think about the purely visual aspect of experience. As we saw above, relationalists typically hold that this aspect is constituted by actual mind-independent items in the perceiving subject's immediate surroundings. If so, how is one to understand total hallucinations? *Ex hypothesi*, in cases of total hallucinations, the subject's experience is not brought about by any of the mind-independent items in her immediate surroundings. That relationalists need to find a way of accommodating total hallucinations is well-known and I shall set the issue aside.[50] Instead, let me highlight that relationalists will struggle with accommodating projection effects. Consider an example: Hansen et al. (2006) found that subjects tasked with adjusting the color of a banana image to an achromatic gray adjust it to a slightly bluish hue. In the control condition, in which they are tasked to adjust the color of an image depicting an amorphous blob, the effect is absent. Hansen et al. suggest that once it has been adjusted to gray, the banana image still strikes subjects as yellowish, which is why they keep adjusting it further. This effect, Hansen et al. think, is due not to any mind-independent object or feature of the image, nor is it due to some feature of the perceptual situation. Rather, their explanation draws on the fact that subjects know that bananas are yellow, which is said to affect the phenomenology of the subjects' experiences. In Hanson's terms, the phenomenology of being yellow is projected onto the banana image. As they try to adjust the image to gray and since they face the projection effect, subjects counteract it by adjusting the image to what is in fact a bluish hue and indeed to a hue they would see as bluish if it were the hue of some non-descript figure.

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[49] Alternatively, it may be that we see these items as red and that in the belief context we inhabit, seeing something as red comes to be what makes it rational for us to transition to the perceptual judgment that we face something green. Associations between phenomenology and concepts may well vary in how robust or malleable they are.

[50] As mentioned before, some relationalists simply deny that total hallucinations have a phenomenal character (e.g. Fish 2009). Others claim that we can only characterize the phenomenology of hallucinatory experiences epistemically, i.e. by way of insisting that all we can say about the phenomenology of total hallucinations is that for subjects undergoing such experiences, they are indistinguishable from cases in which subjects actually do perceive what they think they see (see e.g. Martin 2004, and e.g. Siegel 2004, 2010 for discussion).

Relationalists, recall, take experience to be a relation between subjects and suitable mind-independent items. Accordingly, a subject's experience cannot have the phenomenology that would typically be associated with an item's being yellowish unless the subject is in fact related to some suitable mind-independent item. But if so, then to explain the banana effect, relationalists must either find some such item—which in the banana case seems hopeless—or find some other way of explaining it. The trouble is not necessarily that the relationalist must explain how the subjects' experiences can have a phenomenology associated with yellowish, it is indeed likely that relationalists will deny that they do.[51] But whatever alternative account is proposed, it must serve to explain why the subject's being visually related to the banana image, once it has been adjusted to an achromatic gray, does not give rise to a phenomenal character associated with gray—or if it does, why that particular phenomenal character fails to appropriately guide the subjects' actions and judgments.

For Hanson, neither of these problems arise. He may agree that the phenomenal character of experience is often constituted by the subject's being related to mind-independent objects. Indeed, as discussed in the previous section, he will insist on the following: if empirical constraint is to be possible, then at least in some respects, it must be possible for the visual field to develop in ways that are due not to our beliefs, but to how things are anyway. But experiential phenomenology need not be so constituted. Since Hanson entertains the possibility that a subject's beliefs can affect her visual field and its elements, he can simply easily accommodate Hansen et al.'s interpretation of the banana case. Whether the best explanation of the banana case must indeed draw on projection effects may be controversial. But if it does, Hanson, in contrast to the relationalist, is not in trouble. For whereas Hanson can accommodate projection effects, the relationalist is more likely to be committed to the claim that such effects are impossible.[52] If so, then empirical cases in which subjects' beliefs appear to directly modify the visual aspect of their experiences will pose a challenge to the relationalist.[53]

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[51] If the relationalist allows for there to be a different kind of phenomenology, an account is needed as to how it interacts with the phenomenology constituted by being related to mind-independent items. Note also that regardless of which strategy the relationalist pursues, she will need to ensure that the resulting account does not undermine whatever justificatory role she may take experiential phenomenology to play.

Next, consider representationalism. Representationalists vary in how they construe representations, their relation to beliefs, the world, and the visual or phenomenal aspect of experience. Still, one core idea unites them: experience has representational content, which generates conditions of satisfaction (or accuracy), conditions that must obtain if the experience is veridical. Experience, representationalists standardly hold, provides—via its content—evidence that may in turn serve to justify our perceptual beliefs and judgments. For simplicity, I will call standard representationalism the view that experience has representational content and that the role of experience is to provide content that can be exploited to justify perceptual beliefs.

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[52] An example is Fish (Fish 2009). He suggests that getting acquainted with various features of mind-independent items requires corresponding conceptual-recognitional capacities on the part of the subject (cf. ibid., chapter 3). Getting acquainted with such items is in part a matter of having an experience with a distinctive phenomenology. On Fish's view, two subjects who look at the same items in otherwise identical circumstances can therefore have experiences with differing phenomenal characters–namely if they differ in what conceptual capacities they possess and actualize in their respective experiences. As I argue elsewhere, Fish's suggestion is in tension with his commitment to the idea that acquaintance is irreducibly primitive (cf. Rosenhagen 2018). For our purposes, what matters is this: for Fish, actualizing certain conceptual capacities is not sufficient for generating a corresponding phenomenal character. For the latter to be generated, a suitable mind-independent item actually needs to be presented to the subject. Since such an object is absent in the banana case, it is, accordingly, not open to Fish to suggest that the banana effect could be due to an inappropriate actualization of the conceptual capacity to recognize yellowish things. This need not be the end for Fish's view, for he could suggest that in the banana case, the subjects' background beliefs modify not the subject's experiential phenomenology, but rather what judgments get to be associated with that phenomenology. If so, the challenge Fish has to address is that of developing an account of the relation between judgments and experiential phenomenology that is powerful enough to accommodate the specifics of the case.

[53] Similar challenges are sometimes raised in the literature. Under the heading of what he dubs *problems of infusion*, Quassim Cassam has challenged the relationalist John Campbell to allow that the phenomenal character of one's experience changes once what is seen is recognized (cf. Campbell & Cassam 2014, pp. 141-2)—i.e. to allow for effects related to expert vision. Unfortunately, in his response to Cassam, Campbell does not address the issue.

Bill Brewer is one of the few relationalists who tries to accommodate such effects. In Brewer 2011 and Brewer 2018, he distinguishes *thin* looks from *thick* looks. Thin looks are looks objects are said to have due to being relevantly similar, relative to a point of view and circumstances of perception, to paradigm examples of certain kind of objects. Thick looks, on the other hand, are thin looks that are *registered* by the subject. Now, Brewer suggests that such recognition may in turn give rise to a specific phenomenology (cf. Brewer 2011, esp. pp. 120-4). However, he remains silent on what exactly these effects are and how the phenomenology they give rise to interacts with the phenomenology of thin looks. Moreover, Brewer insists that objects can only thickly look *F* if they also thinly look *F*. And since he explicitly maintains that how things thinly look is completely belief-independent, the way things can look thickly must likewise remain insulated from the subject's beliefs. Accordingly, it is not open to Brewer to suggest that a subject's recognition of the grey banana image as depicting a banana could bring about a phenomenology associated with yellow. For a more detailed discussion of Brewer's proposal, see Rosenhagen 2018.

On Hanson's view, experience has not just a purely visual aspect, but conceptual representational content as well. For to say that *S* sees something as *F* can be rephrased by way of saying that *S* has an experience that represents something as *F*. There are at least three features that distinguish Hanson's flavor of representationalism from many other varieties. *First*, some representationalists limit the content visual experience can have to what would be expressed by terms pertaining to low-level phenomenal properties such as color, shape, or motion, say. Hanson, recall, establishes tight relations, via the notion of seeing that, between seeing as and the seeing subject's belief contexts. On his view, thus seeing as can have rich content, content that is intelligible only in terms of its relations to various theoretical concepts and that is embedded in various complex indicative and subjunctive conditionals.

Second, many representationalists take the content of visual experience to be firmly tied to its phenomenal character. Some think that the phenomenal character of an experience is determined by or supervenes on its representational content, others take the latter to supervene on the former, yet others equate the two. As noted above, proponents of any account of experience face the question of how phenomenal states and concepts get to be connected—so do representationalists, including Hanson. But again, what is distinctive of Hanson's view as I read it is that how the two are amalgamated is not set in stone. Different concepts can of course overlap in their phenomenological profiles and phenomenally different seeings can share some contents. But for Hanson, phenomenological profiles will themselves be malleable and change along with changes in what we believe—changes triggered, perhaps, because what we see diverges from what we expected. Phenomenological profiles, we may say, are themselves theory-laden. Hanson's view of how in experience, the phenomenal and the conceptual relate, I submit, is both more complex than many of the competing accounts and more flexible.

Third, standard representationalists hold that ultimately, the rational role of visual experiences is that of serving to justify beliefs. To the extent in which their content is accurate with respect to the circumstances in which they are had, experiences will serve to justify beliefs with corresponding contents.[54] For Hanson, the content associated with a given phenomenal state will vary with the subject *S*'s belief context, and so will whether *S*, in responding to her experience, will feel rationally compelled to endorse that things are what they are initially seen as, to modify her beliefs and concepts, or to suspend judgment. But what if the beliefs that affect *S*'s experience (its content, visual aspect, or both) are partly false or irrational? Allowing that background beliefs can modify one's experiences threatens to undercut the standard representationalist idea that the rational role of experience is that of justifying beliefs. Standard representationalists who both insist on it and seek to accommodate the effects Hanson points to are pushed towards a view on which experience may play its rational role only sometimes. For experiences, once infected by false or irrational beliefs, must lose their ordinary justificatory powers.

A similar position has recently been defended by Susanna Siegel (cf. Siegel 2017). On her view, experiences with epistemologically problematic etiologies are rationally deficient.[55] Experiential contents that have been hijacked, as she puts it, by the subject's faulty background view are epistemically downgraded: their power to justify beliefs with corresponding contents drops below the threshold sufficient for justification. Of course, the etiology of any given experience may well remain opaque to the subject. Still, Siegel claims that subjects who unknowingly rely on their hijacked experiences act irrationally. The rational response to *S*'s hijacked experience, she insists, would be to withhold judgment, though what is rational for *S* to do may well remain outside *S*'s ken.[56]

Pace Siegel, I think that we would ignore an important dimension of subjective rationality if we dislodged what is rational for *S* to believe or do from what to *S*, given the belief context she inhabits, must seem rational. From the perspective of someone who knows that *S*'s experience is hijacked, *S*, in taking her hijacked experience at face value, surely acts in a way that is epistemically disadvantageous. But given how things must look to *S*, if *S* actually withheld judgment, she would seem even more irrational. Overall, for her to withhold judgment might be epistemically advantageous. But from within the perspective that she inhabits, doing so would have to seem completely unmotivated. Accordingly, taking her to be under a rational obligation to suspend judgment seems counter-intuitive.[57]

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[54] For a discussion on degrees of veridicality, see Siegel 2010. In the present context, only the general idea matters.

[55] Siegel also argues for the fairly revisionary claim that experiences can be the result of (bad) inferences (cf. Siegel 2017). For present purposes, nothing turns on this specific aspect of her proposal.

[56] See Siegel's discussion of Vivek's case in Siegel 2017, p. 14.

The alternative suggested by our reflections on Hanson's conception of empirical constraint is to drop standard representationalism's commitment to the idea that ultimately, the rational role of experience is that of justifying beliefs. Instead, I propose that we adopt the following conception of the rational role of experience: for any experience *e* and any *S*, for *S* to have *e* makes it rational for her to transition to certain perceptual judgments, actions, etc.[58] Crucially, which judgments, actions, etc. are made rational for *S*, upon having her experience, depends on the specifics of her belief context.[59] Transitioning to certain perceptual judgments, actions, etc., on this view, is thus conditionally rational—rational relative to *S*'s experience and her beliefs.

Note that if we drop the conception of the rational role associated with standard representationalism, we remove a substantial part of the motivation for thinking, as Siegel does, that experiences are themselves rational or irrational. Indeed, once we drop it, the idea that experience itself has a rational status, or variable justificatory power, becomes entirely optional. Observe also that in contrast to

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[57] Whether one shares such intuitions is likely to depend in part on how exactly one thinks rationality, and which kind thereof, we should draw on as we explicate the rational role of experience. Such questions depend in part on where one stands with respect to the debate between externalism and various forms of internalism with respect to reasons, a debate which in this paper, I must set to one side. If we bracket intuitions, we can thus observe that Siegel's view and the Hansonian view sketched below diverge on that very issue and that one's reasons for favoring one of them over the other may in part derive from one's reasons for taking a particular stance in the internalism-externalism debate.

[58] Experience may serve various further important functions, e.g. that of providing candidates for reference or, in creatures lacking conceptual capacities, that of bringing environing features into their subjective lives to make them available for further processing. The characterization of the rational role of experience I support is due to Anil Gupta, who first presented the core idea, in Gupta 2006, under the label of the *hypothetical given* (for a much more developed version of his view, see Gupta 2019). Unlike Hanson, Gupta does not focus on effects of theory-ladenness, though—as I argue elsewhere—his view is well-suited to accommodate them (Rosenhagen 2018)]. Note also that in contrast to Hanson, Gupta eschews the idea that experience has conceptual content entirely.

[59] Such actions may include that of withholding judgment. Incidentally, note that more specific versions of the view can be generated if we provide more specific interpretations of 'rational' in 'are made rational'. Some of these versions may yield views that are somewhat similar to a Siegelian view, others will differ markedly in that they require that subjects must have internal access to what makes such transitions rational. Hanson's own view, I take it, falls squarely into the latter camp.

Siegel's view, the alternative proposal mentioned above respects the intuition that assessments of rationality should not be dislodged from the belief context the assessee inhabits. If *S*'s experience is hijacked and nothing indicates as much to *S*, then in taking her experience at face value, *S* is *prima facie* rational.[60] Finally, the proposed alternative conception appears to be completely general. Unlike relationalism, it does without the assumption that every visual experience will relate the subject to some mind-independent item (though many of them may). Regardless whether we deal with ordinary experiences, illusions, partial or total hallucinations, or experiences that are theory-laden in any of the ways discussed—arguably, each combination of a background view and an experience will yield some response that it would be rational to transition to in response.[61] If so, then the fact that experiences may be partly informed by false or irrational background beliefs does not undermine their rational role. Some experiences, we can allow, may serve to justify perceptual beliefs. But even if they do not, they play their rational role without exception.

6. Conclusion

At the outset, I asked how we can think about experience as constraining our thinking while depending on what it purports to constrain. To address the question, I suggested, we benefit from revisiting Hanson's account of (scientific) observation. At the end of this exercise, many important questions remain, e.g. how to construe the structure of belief contexts, their various relations with experience and perceptual judgments, what kinds of links obtain between belief contexts and the visual aspect of experience (e.g. rational links to judgments, actions, etc., but also links that constitute phenomenological profiles), and what other important functions experience may perform. Addressing these issues must await another occasion. What I hope to have shown is that Hanson's account provides a coherent response to our initial question and that its distinctive features serve to distinguish it as a powerful alternative to contemporary relationalist and standard representationalist views. Like any account of experience, Hanson's account faces the hard question how the phenomenal aspect of experience gets hooked up with the conceptual in the first place. But as I emphasized, it contains a particularly flexible account of how the relevant connections, once established, may be modified in light of our experience. Moreover, I suggested that Hanson's account avoids various problems that beset relationalism, can accommodate effects of beliefs on experience without committing to Siegel's revisionary idea that experience itself has a rational standing, and provides, in its account of empirical constraint, the resources for an account of the rational role of experience that is completely general.

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[60] This is compatible with the idea that *S* may be deemed blameworthy, even irrational, if she fails to acquire all the relevant and pertinent evidence.

[61] One reviewer worried that this might be too strong. Note, however, that it may well be rational to respond to one's experience by withholding judgment, by transitioning to the judgment that one is having an experience, or by transitioning to the judgment that one needs to engage in further observation before taking on any commitments as to what one may be facing.

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