Theory-Ladenness and Relativism

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Introduction

“Do Kepler and Tycho see the same thing in the east at dawn?”¹ This problem, formulated by Norwood Russell Hanson,² brings forward a line of thought that can lead us straight to theory-ladenness of observation: Imagine them standing side by side watching the sunrise, but while Johannes Kepler sees the earth moving, Tycho Brahe sees a moving sun. Suppose each visual apparatus is well functioning, the only serious difference between them seems to be a difference in the theories or hypotheses they already have. This might yield the assertion that their observations are laden with theory.

If however observation, e.g. in scientific context, is dependent on already accepted theories, it seems reasonable to have significant doubt about the absolute status of scientific results: They seem to be relative to

¹ Hanson 1969, p. 5.
² Although the Kepler-Tycho example is dominant throughout Chapter 1 of his “Patterns of Discovery” it is an interesting fact that Hanson does not quite get it right. Ptolemy and Copernicus differed over two things. First, they differed over whether the sun is moving around the earth (geocentric) or the earth around the sun (heliocentric). And secondly, Ptolemy thought of the earth as a static celestial body (geostatic) while Copernicus conceived the earth as moving about its own axis. Kepler and Tycho only differed over one of these two things. They both agreed that the earth is rotating about its own axis (non-geostatic), their disagreement rested on the question of what to put in the center of the picture. But Hanson’s recurrent question: “Do Kepler and Tycho see the same thing in the east at dawn?” can only be motivated by a disagreement on whether the sun is moving around the earth or the earth rotating about its own axis (geostatic or non-geostatic). Well, that had never been the contentious point between Kepler and Tycho.
a scientific community, which holds theories that specify what can be observed and by which methods observations are to be interpreted. This is why the problem of theory-ladenness often appears in relativism-related writings of philosophers like Thomas Kuhn or Paul Churchland.

The general aim of this paper is to figure out whether perception is theory-laden in a way that leads to epistemic relativism. We will thus look at different views on perception and discuss their tendency to be theory-laden. In a second step, we will figure out what follows from each of these findings for relativism. Before however we attend to this task, some clarifications are needed:

First, because of their centrality in this paper as well as their vastly differing use in other papers on the topic, we will define what we mean by the concepts of ‘relativism’ and ‘theory-ladenness’. Second, we will explain our procedure: Why exactly do we investigate the relation between theory-ladenness and relativism only with respect to the potential implications of theory-ladenness for relativism (and not the other way round)? And why do we examine perception rather than observation?

Definitions

**Relativism:** Relativism asserts that different judgements can only be assessed relative to a particular, limited standpoint. In order to have a common denominator for different kinds of relativism, it makes sense to start with a rather broad and formal definition by saying that all forms of relativism have in common the claim that a subject-matter X is relative to some framework F.

Kinds of relativism can thus be further distinguished by considering the nature of the object X that is relativized (moral, epistemic, aesthetic, etc.) and the kind of framework F it is relativized to (culture, language, history, etc.).

Epistemic relativism is usually the relevant form of relativism when it comes to theory-ladenness discussions. Here, the object relativized is knowledge. As knowledge is traditionally understood to imply both truth and justification, relativized knowledge can amount to two different kinds of relativism. While more moderate forms of epistemic relativism deal with relative justification, a stronger approach may include relativized truth (alethic relativism).\(^3\)

\(^3\) Cf. Bloor 1991, p. 159.
In the work of some proponents, it’s not easy to see whether a strong alethic or a more moderate epistemic relativism is advocated. The Strong Programme by Barnes and Bloor for example operates with a concept of knowledge that differs from the classical usage within a philosophical epistemological context. As the notion of truth seems to have vanished in their definition of knowledge, alethic relativism might not be the result of their findings concerning relative knowledge; they occasionally seem to mean it is, however.

Because we want to examine what follows from theory-ladenness for relativism, it is also necessary to make some remarks about what is meant by ‘theory’ or ‘theory-laden’.

Theory-laden: Brewer and Lambert define ‘theory’ as “all higher level forms of knowledge”. This is already a broad definition, but it is still too strict for our purpose. For example: If somebody wrongly holds the belief that no wolves live around his home, he might ‘see’ a shepherd dog, when in fact there is a wolf (despite his ability to discriminate the kinds). Although we might say that this is a case of theory-laden perception, many philosophers would not categorize such a belief as knowledge, since it isn’t true. So ‘knowledge’ is not broad enough, but ‘belief’ isn’t either: If the person in our example expected to see his neighbour’s dog or thought of dogs at that moment for some reason, he might have also mistakenly taken the wolf to be a shepherd dog. Therefore, we should also take expectations, thoughts, attention and so on into account, too. Later in this paper, we will make use of a terminology that refers to ‘top-down processes’. Here, an involvement of higher brain functions during perception might influence the outcome of perceptual processing in such a way, that this perception could reasonably be called ‘theory-laden’.

Although these specifications are admittedly very permissive, they allow us to investigate perception on a very basic level, without excluding possibly involved processes up front.

4 Cf. Barnes/Bloor 1982, p. 22, footnote 5: “We refer to any collectively accepted system of belief as ‘knowledge’.”
5 Brewer/Lambert 2001, p. 177.
Aims and Procedure

It is important to note that it is not necessary for the relativist to argue from theory-ladenness.\textsuperscript{6} Therefore, an investigation of theory-ladenness cannot be able to prove relativism false. It can, however, shed light on the question of whether perception and observation are viable methods of justification for knowledge. If perception and/or observation is influenced by what we already hold true, a justification of knowledge that relies on these is prone to error at self-referentiality, and the door to epistemic relativism is open wide. If we want to secure the basis of knowledge on the common, unprejudiced ground that is our shared perception, we need to be sure that what we perceive is not influenced by what we expect to find.

Most theorists talking about theory-ladenness consider the theory-ladenness of observation. In this paper, however, we will try a different approach and consider the more fundamental concept of perception that lies beneath it. If a theory-neutral ground for perception cannot be found, justification provided by observation must take this into account.

When Hanson and Churchland discuss Gestalt-experiments (see below) or argue about scientifically trained people “seeing” different things,\textsuperscript{7} it seems that they are not always talking about observation, but about what we call perception. The difference between observation and perception as we understand it seems to be the following: although perception is in play when we observe something, observing includes more than perceiving. Observation is attention driven and often takes place in experimental setups. This difference becomes apparent when we look at the resulting content. While observations can have contents like “the earth is moving about its own axis”, the content of perception is tied to actual experiences and can not be about things like axes.

\textsuperscript{6} There are other strong arguments at his disposal like the so-called argument from norm-circularity. Cf. Boghossian 2006, Chapter 5.

\textsuperscript{7} Cf. Hanson 1969, p. 16: “The layman must learn physics before he can see what the physicist sees.”

Cf. Churchland 1988, p. 176: “Most freshman physics students do memorize those laws, but relatively few have their perceptions much altered. The few who do are distinguished by having practiced the skills of applying those laws in a wide variety of circumstances.”
In the following, we will investigate if and how theories in the broad sense mentioned above might have an influence on the content of our perception. We will see that it makes quite a difference which kind of approach concerning the content of perception we will take. If we construe the content of our perception conceptually, theory-ladenness will be harder to avoid than with a non-conceptual understanding of this content.

To illustrate this, consider Gestalt-experiments, like the Necker-Cube, la jeune fille – la vieille femme or the duck-rabbit-head. While in fact looking at the same object, two subjects can differ not only in respect to what they say the object is, but also in respect to what they see, at least in some sense. As Hanson describes it:

[…] in Köhler's famous drawing of the Goblet-and-Faces we take the same retinal/cortical/sense-datum picture of the configuration; our drawings might be indistinguishable. I see a goblet, however, and you see two men staring at one another. Do we see the same thing? Of course we do. But again we do not.

As both are looking at the same drawing, this drawing causes the same retinal/cortical/sense-datum pictures, and in this sense they do see the same thing. When asked to report what it is they see however, one report is about two men staring at each other, while the other is about a goblet. If one was expecting to see a goblet because someone told him to look at “that drawing of a goblet”, his expectation of what he would find might have altered his perception.

A proponent of non-conceptual content of perception could point out that what they actually “see” is the same, it is only their reports that differ because they interpret their perception differently. A proponent of conceptual content won’t get away that easy. The fact that their observational reports contain different concepts suggests that these concepts are also part of – accordingly differing – experiences.

8 We will focus on visual phenomena as most examples and arguments concerned with theory-ladenness concentrate on visual experiences. But we are quite confident that whatever conclusion these investigations on vision lead to, they will also hold for experiences with other senses.

9 Hanson 1969, p. 12.

10 Hanson thinks this approach cannot be carried through. He insists that the lack of a conscious mental process shows the absence of interpretation (cf. Hanson 1969 p. 11). But ‘conscious mental process’ is not a good criterion for ‘interpretation’ as Gilbert Ryle 1949 has already shown.
There are well-known arguments for and against both positions, some of them very fundamental. While proponents of conceptual content are usually worried about how non-conceptual content could be judgment justifying content at all, proponents of non-conceptual content emphasize the limitations that concepts bring with them and that these limitations do not accord with perceptual reality (consider fineness-of-grain-arguments and belief-independency-arguments).

Because proponents of either thesis about the content of perception will have to confront arguments suggesting theory-ladenness differently, we will take the bull by the horns, split this paper twofold and consider both approaches; part 2 of this paper will thus deal with conceptual content of perception while part 3 will deal with non-conceptual content of perception.

Once we have established the extent of a possible theory-ladenness on either account of perception in the respective parts, we will follow each one up with an examination of how this influence might yield relativistic claims. A summary of our findings can be found in the fourth and final part of this paper, smartly dubbed “conclusions”.

**Conceptual Content of Perception**

We have seen that gestalt-experiments are difficult phenomena to explain for a proponent of conceptual content of perception. Different concepts in observational reports suggest different experiences. But this is not only the case for gestalt-experiments, but for all cases of everyday perception as well.

To back up this claim, let’s pick a simple example mentioned in similar style by John McDowell in his essay “Avoiding the Myth”. Looking at the same object (a bird), Dr. Ernie sees a cardinal while Mr. Bert just sees a bird (because Mr. Bert doesn’t know anything about cardinals). The content that would figure in their experience would vastly differ. While

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11 In this section we will focus on John McDowell as proponent of conceptual content of perception. This is due to the fact that he is one of the most prominent proponents of this thesis in actual discourse and seems to be sensitive to theory-ladenness-problems. It might be that this sensitivity gave rise to his new approach to conceptual content of experience, which will be discussed in this paper.

12 McDowell 2009.
Dr. Ernie’s is about a cardinal, Mr. Bert’s is about a bird. How can we avoid that, looking at the same thing, Dr. Ernie’s and Mr. Bert’s experiences have different contents?

One of the sources of this ‘same object – different content’-problem is the way we identify the concepts that figure in the content of experience. In our example we stipulated that Mr. Bert’s content of experience contains the concept ‘bird’ while Dr. Ernie’s contains the concept ‘cardinal’. But is that necessarily so? Can’t we state that Mr. Bert’s and Dr. Ernie’s contents of experience both contain the concept ‘bird’ and that Dr. Ernie only further infers that this bird is a cardinal? Although this way of arguing seems to be attractive at first sight, we have to acknowledge that, for standard uses of the verb ‘infer’, Dr. Ernie no more infers that it is a cardinal he is seeing than Mr. Bert that it is a bird. So both concepts, ‘cardinal’ and ‘bird’, are non-inferentially in play (where it seems that ‘non-inferential’ in this context means ‘without conscious interpretation/inference-processes’). McDowell mentions this example to introduce a revision of major parts of his former theory of perception presented 1994 in “Mind and World”.13 He drops the idea that every concept that figures in a non-inferential content is a concept that also figures in the content of experience. Because if he drops this idea, it remains possible for Mr. Bert’s and Dr. Ernie’s experience to have the same content (e.g. that there is a bird) while both concepts ‘bird’ and ‘cardinal’ are non-inferentially in play. In McDowell’s words:

On my old assumption, since my experience puts me in a position to know non-inferentially that what I see is a cardinal, its content would have to include a proposition in which the concept of cardinal figures: perhaps one expressible, on the occasion, by saying “That’s a cardinal”. But what seems right is this: my experience makes the bird visually present to me, and my recognitional capacity enables me to know non-inferentially that what I see is a cardinal.14

But if we follow McDowell and don’t decide which concepts figure in contents of experience by whether they are non-inferentially acquired or not, then by what criterion do we judge concepts to be constituents of experiential contents? What are contents of experience like in comparison to other non-inferentially acquired contents?

13 McDowell 1996.
McDowell characterizes contents of experiences as those that can only consist of concepts of common and proper sensibles. Or, in his words: “We should conceive experience as drawing on conceptual capacities associated with concepts of proper and common sensibles.”15 And: “The common sensibles accessible to sight are modes of space occupancy: shape, size, position, movement or its absence.”16 So neither Mr. Bert’s nor Dr. Ernie’s content of experience would contain concepts like ‘bird’ or ‘cardinal’. It is difficult to say exactly what kind of content their experiences have, and maybe this is one of the motives for McDowell to revise propositional content of experience as a whole. But even if we put this difficulty aside, it should be emphasized that if this conception of experience is to protect us from theory-laden perception at all, it has to conceive these concepts of common and proper sensibles as something that all mankind shares (or at least, the main part).17 It remains an open question where we get these shared concepts from.

So it seems that the conceptual content of experience can be conceived in a way that doesn’t have theory-ladenness as a result. But most proponents of experiential conceptual content are also proponents of experiential propositional content. And it seems that this makes, again, room for considerations in favor of theory-ladenness.

Propositional content is content that could also figure in a judgment. If I judge by way of seeing that there is a pink orange in front of me, then my experience could have had the same content: It would have been the experience that there is a pink orange in front of me. Now it is quite obscure how contents of the kind that figure in judgments could just consist of concepts of proper and common sensibles. And this is not the only reason why propositional content can seem less attractive than purely conceptual content. Propositional content just picks out little information from the manifold of experience. If the content of my experience is that there is a pink orange in front of me, then my content is not about

17 It should be mentioned that McDowell himself is, in a very broad sense, a proponent of theory-ladenness of perception, while trying to grant that while looking at the same object (under the same circumstances) the content of our experience is the same. This may sound contradictory but is due to his old aim of trying to combine the spontaneity of mind with the passivity of perception in the receptivity of experience: “[...] capacities that belong to the higher cognitive faculty must be operative in experience” in McDowell 2009, p. 260.
what this orange is lying on, what form it has or what is to the left or right of it. If the manifold of experience should be part of my propositional content of experience, then it needed to consist of an infinite number of propositions. That doesn’t seem very likely.

What does all this have to do with theory-ladenness? If the content of experience consists of one or maybe a few propositions, these propositions will differ with the background, especially the attention, of the perceiving subject. And if attention has an effect on the content of our experience while we are looking at the same object then our experience is theory-laden. This might not be a very strong form of theory-ladenness, because the propositions themselves are not theory-laden, only their selection is. But the manifold-to-proposition-problem is maybe reason enough to prefer purely conceptual content over conceptual and propositional content. Is the former way to conceive experiential content consistent? Can contents be conceptual without being propositional?

We already mentioned that McDowell revises experiential propositional content as a whole\(^\text{18}\) so for him it seems to be an option to talk of conceptual contents that are not propositional. He therefore introduces a new conception of what it is for something to be conceptual. Concepts are no longer characterized as conscious and articulable, but as intuitional.\(^\text{19}\) It is far from obvious that this notion of ‘concept’ fits the actual discourse about what it is to be conceptual or, even worse, that it can satisfactorily explain the opposition of experiential conceptual and experiential non-conceptual content (if we forget for a moment that McDowell says it does). But if such a broad concept of concept and a restriction of the concepts that can figure in contents of experiences to proper and common sensibles is at hand, experience can be conceived as theory-neutral.

To sum up, positions that conceive the content of experience as conceptual lead to theory-ladenness considerations. The only way to get a clear separation between observation and theory, if one wants to secure something like this, is to restrict the concepts that can figure in experiences to concepts of proper and common sensibles and at best (but this is not obligatory) to conceive the content of experience as purely conceptual (and non-propositional).

\(^{18}\) Cf. McDowell 2009.

\(^{19}\) Cf. McDowell 2009.
Conceptual Content of Perception and Epistemic Relativism

So far we have seen that only some versions of conceptual content of experience can be described as producing theory-neutral content. These versions bring various inconveniences along with them and might even turn out to be unsustainable. But if they are sustainable, they can secure a neutral and common element in our perceptions. Our resulting beliefs could still be affected by our theories. But the common element would make them commensurable, so that the requirements of justification the absolutist needs could probably be met.

Other versions of conceptual content of experience seem to produce content that is affected by the theories (knowledge, thoughts) the perceiving subject has. Does this affection lead to epistemic relativism? Surely, in some sense our perception is relative to our framework, but does that make knowledge relative?

We described two different versions of experiential content, where an affection is in play. In one version, the content of experience is theory-laden because of the differing concepts that can be in play (bird and cardinal). The other version furthermore conceived experiential content to be propositional and thereby produced content whose selection is due to theory.

To get an idea of how this theory-ladenness connects with relativism, let us start with the first version: the mysterious case of Dr. Ernie and Mr. Bert. This case isn’t at all that mysterious, because their beliefs don’t contradict each other and may both be categorized as (everyday-) knowledge. The question is whether this kind of theory-ladenness may cause or justify beliefs that cannot both be true at the same time. The example of Kepler and Tycho suggests it does: If their contradictory concepts of the sun (that get their meaning from their theories) are immediately in play as they are looking at it, they really see different things and are equally justified in holding their current beliefs. That means perception would fail as the theory-neutral element of scientific observation and justification of theories.

We may distinguish different situations in which one uses perception for justification in order to find the framework in play for a resulting relativism: If somebody looks at something, the beliefs arising from his
perception would be dependent upon the concepts available to that person. Justification of everyday-knowledge could therefore be seen as being relative to conceptual capacities. If that person however needs to defend his beliefs or doubts them for some reason, the experienced content has to be compared to other beliefs and its justification is therefore not only dependent upon concepts, but upon theories and beliefs that are broadly accepted by the society he is a part of, as well. On the highest level of discourse, this would lead to the kind of relativism, which claims that justification of scientific knowledge is relative to a scientific community. It is important to note that this doesn’t offhand lead to alethic relativism: Truth may be absolute when justification is not. But we would still have an epistemic relativism at hand: if justification is relative, then knowledge itself is as well.

Let’s turn to the second version, where experiential content consists of concepts of common and proper sensibles and is propositional. If we assume that propositions can consist of concepts of common and proper sensibles, perception would still be theory-laden, although not necessarily in a way that leads to relativism. That is because common sensibles still secure the equality of experiential content. The only thing affected by propositional content of experience would be the picking-out of the manifold of experience. If it is still possible to direct attention to the same aspects of the issue in question, nothing could be followed that would lead us to relativism.

Non-Conceptual Content

Now that we’ve examined arguments for theory-ladenness with conceptual content of experience, let’s take a look at non-conceptual content of experience.

As Athanassios Raftopoulos and Vincent C. Müller pointed out, we have two major approaches at our disposal here. The first would be a traditional phenomenological approach, while the second would be a neuroscientific one. We will stick to this classification and consider both approaches.

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The phenomenological approach considers perceptual situations, by ‘observing’ whether beliefs or knowledge have an influence on perception. As these investigations are purely phenomenological, there are only few methods to ‘observe’ this relationship: introspection, interrogation and examination of behavior modification.

More recently, the neuroscientific approach has gained more influence. This approach enables us to take a closer look at the fundamental neurological brain-processes that take place during perception. But let’s start with the phenomenological approach and look at simple situations of perception as well as cases of optical illusions.

(I) The phenomenological approach
In simple situations of perception, if two people see an X and both have different beliefs about what they see, one might say that they see something different. But there are also good reasons to deny the latter and only speak of different observations or associations regarding the perceived object.

Let us take a closer look at cases of optical illusions, like the bent stick under water. Here we can see that the belief or even the knowledge about the stick being in fact straight doesn’t change its bent appearance. This seems to show that perception is not theory-laden.

Other cases of illusions however do suggest that there are altering influences on perception. If we consider the Müller-Lyer-Illusion and its research results for example, we know that the illusion only appears to those perceivers who are familiar with edges and corners.21 By contrast, if the perceiver is a little child or has never lived in areas with many corners or edges, like on the North pole or in a desert, the illusion remains absent and the two lines appear to be of equal length. Whether such an influence on perception counts as an influence by higher-order cognitive states however, is once again controversial. Although defenders of theory-neutral perception acknowledge these cases, they don’t feel the need to take these as a sign for penetrability of perception by beliefs or knowledge.

Raftopoulos for example mentions “[…] general, reliable regularities about the optico-spatial properties of our world hardwired in our perceptual systems”\textsuperscript{22}

Furthermore, he states that if one takes knowledge to be affecting perception in these cases, one has to admit that this knowledge would be an unusual kind of “implicit” knowledge, that is only available “for the processing of the retinal image, whereas explicit knowledge is available for a wide range of cognitive applications”\textsuperscript{23}

So this special kind of ‘implicit knowledge’ (or implicit assumption, as it might be called more correctly, because it doesn’t imply truth) is not accessible to the person whose perception is affected by it and thus can’t change even in the light of other opinions or knowledge that person has.

This way of defending a theory-neutral position might not be as convincing as it appears at first glance. Churchland tries to point out that the hard-wiring of assumptions into our perceptual system does not make perception itself any less theory-laden\textsuperscript{24}– it just relocates the theory into our hardwired visual system and therefore presents the influence as a universal dogma. But then again, Raftopolous claims that it would still constitute a common ground for perception, and perception itself can thus considered to be as theory-neutral as can be.

Other often-quoted cases for theory-ladenness are those of expert perceivers. For example wine and art experts or chicken sexers\textsuperscript{25} show extraordinary abilities to distinguish their respective objects. Based on these examples, early supporters of theory-ladenness concluded that these people learned a specific way of seeing something, which shows the penetrability of perception by knowledge or by learning.

But additional studies provided further information and explained this expertise. Although most experts cannot state exactly how they separate originals from copies, males from females and so on, these studies revealed that they have learned to detect perceptual nuances, which allow them to acknowledge characteristics of objects that others are unaware

\textsuperscript{22} Raftopoulos 2001\textsuperscript{b}, p. 189.
\textsuperscript{23} Raftopoulos 2001\textsuperscript{b}, p. 189.
\textsuperscript{24} Cf. Churchland 1988.
\textsuperscript{25} Cf. Biederman and Shiffrar 1987; Pylyshyn 1999.
of. Based on these results, proponents of the impenetrability thesis deny that those experts have learned a new way of seeing, as these expert-abilities aren’t due to additional or different visual data. Instead, those abilities kick in only after the perceptual system has done its part. This is similar to the rabbit/duck case, only that it isn’t an ambiguous, but a task situation. The focus of attention highlights certain aspects of the information already presented by the visual system to identify the visual object as something.

(II) The neuro-scientific approach
With the progress of neuroscience and new research methods, especially neuroimaging technics, possibilities arose to learn more about how the brain and its internal processes work.

Nowadays, we can measure brain-responses (ERP) and generate graphical brain images (PET) of a person, while he is in a perceptual state. These methods can also be used to discover activities of so called cognitive ‘top-down processes’, which influence perception. The term ‘top-down processes’ is used to refer to all brain-processes that involve stimulation of higher brain functions, such as inductive and deductive reasoning, thinking, problem solving, other conscious and spontaneous states, like object identification and object remembrances, etc.

Additionally, we speak of higher-order cognitive influence on perception, whenever these top-down processes influence the result of the lower-order cognitive processes to such an extent, that one can’t be sure whether what one sees is congruent with reality (what there is to see) – because what one sees would then be highly dependent upon what one believes.

But, alas, there is no agreement about how to interpret the collected neuroscientific data.

Some scientists speak of an encapsulated visual system called “early vision” that is not penetrable by higher-order cognitive processes, others are of the opinion that there is no impenetrable visual system and that the

\[28\] “Task-Situation” - because the perceiver has the task to identify certain aspects.
\[29\] Cf. Pylyshyn 1999.
occurance of top-down processes strongly suggests a modification of our visual output.\textsuperscript{30} To shed light upon the topic, let us first say something about the disputed ‘early visual system’, its ‘in-’ and its ‘output’, before we turn towards some of the neuroscientific research and its results.

The ‘early visual system’ should be understood as a compilation of all (lower- and intermediate-level) visual processes that are responsible for processing the input and producing the output.

The term ‘input’ refers to data, which constitute the basis of all visual processes. Information of such a kind inherits both retinal images and information from other sources (like the vestibular system for spatial orientation). Note, however, that not everything that hits our retina counts as ‘input’, as the focus of attention is considered to precede the early visual system. A full statement of what exactly this ‘input’ is composed of, is an empirical task which remains to be accomplished.\textsuperscript{31}

Accordingly, the term ‘output’ refers to the non-conceptual product of the computation of the visual input, and thus to the information that is the basis for all further cognitive processes.

Thus, if one talks about the penetrability or the impenetrability of the visual system, one argues for or against a visual system that is ‘encapsulated’ and thus separated from higher-order cognitive processes.

Let us now make use of this terminology and take a look at some neuroscientific research and its results.

Cases of ‘visual agnosia’ – a visual dysfunction - have gained a certain prominence, so let’s examine these first. Patients diagnosed with visual agnosia usually show deficits like being unable to recognize familiar objects or faces and they furthermore have difficulties discriminating simple shapes. Yet, they don’t suffer any intellectual loss and still perform many other visual and object-recognition tasks. For example one patient with visual agnosia could still recognize the usage or characteristics of the perceived object by focusing on different features of it, but he wasn’t able to entirely and spontaneously recognize an object upon seeing it. He could, however, slowly and laboriously puzzle out what he saw by using this technique.\textsuperscript{32} This fact led Glyn W. Humphrey and Jane Riddoch\textsuperscript{33} as

\begin{itemize}
\item \textsuperscript{30} Cf. Churchland 1988.
\item \textsuperscript{31} Cf. Howard 1982; Pylyshyn 1999.
\item \textsuperscript{32} Cf. Pylyshyn 1999; see also Farah 1990, Humphreys and Riddoch 1987.
\item \textsuperscript{33} Cf. Humphreys and Riddoch 1987.
\end{itemize}
well as other scientists\textsuperscript{34} to the conclusion, that only after an object has been `perceived', the recognition-process begins. In perceptual situations of unimpaired subjects these recognition processes work so fast, that it appears as if they were a part of perception.

An important contribution in this context is the argument of descending pathways\textsuperscript{35} originally put forward by Paul Churchland. Since cell-staining techniques revealed that “[…] descending pathways from the higher level of processing back to the earliest processing systems at the retina”\textsuperscript{36} exist, Churchland argued that there has to be a much bigger cognitive influence on perception than just the decision which output is the most suitable in ambiguous perceptual situations, as in the case of the rabbit/duck-head.\textsuperscript{37}

Raftopoulos however has a quite different explanation for the existence of descending pathways at hand. As recent neuroscientific experiments have shown, areas of the brain used in perception are also used for other tasks – imagery, for example.\textsuperscript{38} Additionally, when participants of the experiment were asked to find specific patterns or objects in the images presented, these so called attention-driven tasks modulated these same areas – but only after the initial visual stimulus had been transmitted as output. The standard output of the visual system had not been changed in any way. Thus, the descending pathways must exist, if these tasks are to be executed voluntarily by higher-order cognitive states, but do not necessarily constitute a cognitive influence on perception, as might be suspected.

\textit{Non-Conceptual Content and Epistemic Relativism}

Summing up, it seems easier for proponents of non-conceptual content of experience to escape the problem of theory-laden perception. As far as relativism is concerned, a common element in perception gives a neutral ground, which different theories have to adhere to. Although Churchland rejects the notion of encapsulated visual systems on the grounds of thinking of them as endorsing a universal dogma, Raftopoulos’ argument

\textsuperscript{34} Cf. Farah 1990.
\textsuperscript{35} Cf. Raftopoulos 2001a.
\textsuperscript{36} Raftopoulos 2001a, p. 435.
\textsuperscript{37} Cf. Churchland 1988; Raftopoulos 2001a.
\textsuperscript{38} Raftopoulos 2001a.
about these systems still providing a common ground seems to be sound; the common element in perception seems to be (for us humans at least) retained and the danger of falling to relativism evaded.

According to Raftopoulos, the mere existence of descending pathways to the visual system does not constitute a sufficient ground to base a theory-ladenness of perception on, as it remains to be shown that these pathways have an impact on the original visual output, rather than just providing the ability for attention-driven tasks, which utilize the same areas of the brain only after the original output has been delivered and thus a common ground provided.

The problem might not have been evaded fully though; proponents of non-conceptual content of experience must still account for the problem formulated earlier, which concerns how this non-conceptual content can be judgment justifying content at all. The problem of theory-ladenness and relativism might return as soon as one tries to map the non-conceptual content of experience to a conceptual scheme – but a closer examination of this relation is outside the scope of this paper.

**Conclusion**

In this paper, we have examined whether a theory-neutral ground in perception could be established while considering two major approaches regarding the content of it.

In the case of perception with conceptual content, we have seen that it is quite difficult to escape the problems of theory-laden perception. As different perceivers have different concepts to employ in perception, the content of perception would vary accordingly. Possible solutions to these effects of conceptually construed perception seem to be equally difficult; McDowells theory of “common sensibles” comes to mind. How justification of knowledge is to be put down to the level of common sensibles, remains an open question. Without a solution to these problems however, perception is sure to be theory-laden and different perceivers really do perceive different things. Different beliefs would be based on subjective perceptions and thus equally justified and the absence of a theory-neutral element seems to make it impossible to escape relativism.

If perception is construed non-conceptually, these problems seem to be easier to avoid. The mere existence of descending pathways in the
wiring of our brains did not prove an influence on perception by higher order cognitive states, as the stimulation that stems from these pathways kicks in only after the initial perception has been delivered. If an encapsulated visual system is not accepted due to it amounting to no more than a hard-wired dogma, it could still prove to be the common element in perception needed in order to reject relativism – although this includes a restriction to non-conceptual perception which might cause other severe problems.39

Bibliography


39 We would like to thank Richard Schantz for his support, Markus Seidel for his corrections and comments on earlier versions of the paper, as well as Robert Brucherseifer, Simon Deermann and Mario Franz for their preliminary assistance.


