Nonconceptualism and the cognitive impenetrability of early vision

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This paper examines the relationship between cognitive impenetrability and perceptual nonconceptualism. I argue against the view, recently defended by Raftopoulos, that the (alleged) cognitive impenetrability of early vision is a necessary and sufficient condition for states of early vision and their content to be nonconceptual. I show that that view, here dubbed ‘the mutually entailing thesis’, admits two different standard interpretations depending on how we understand the property of being nonconceptual—corresponding to the distinction between the state and the content views of perceptual nonconceptualism. I first argue for the falsity of the state-nonconceptualist reading of the mutually entailing thesis, on the grounds that it mistakenly takes being nonconceptual to be a causal instead of a constitutive relationship. The content-nonconceptualist understanding of the thesis, I then argue, is disproved by plausible views regarding the content of experience. The mutually entailing thesis could only be true, I conclude, on a non-standard, causal interpretation of the notion of nonconceptual content. Yet, on that reading, the thesis would either be trivially true or would entirely fail to engage with the contemporary literature on perceptual nonconceptualism. Some potential relationships between the causal reading of the mutually entailing thesis and psychological research in this area are also briefly discussed.

Keywords: Cognitive Impenetrability; Content of Experience; Nonconceptualism

1. Introduction

To properly understand mental phenomena, we must take a dual approach, one that respects the science while insisting on the critical importance of other—in particular, philosophical—modes of analysis and understanding. The study of perception is no exception. In particular, any analysis of the structure and nature of perceptual experiences should aim to balance the two approaches and to develop a fully integrated view where each informs and constrains the other. This call for mutual
enlightenment often issues in successful and insightful collaborations. Sometimes, however, things go astray. Sometimes, the attempt to fit together empirical and philosophical claims ends up distorting either the philosophical concepts or the empirical results. In what follows, I illustrate a distortion of the first kind by discussing a proposal about the relationships between the content of early vision states and their causal history. Although the discussion of the nature of perceptual content is interesting in its own right, what is at stake here goes beyond the mere philosophical underpinnings of this notion. It issues a warning about the danger of conflating causal and constitutive claims in the complex intertwining of science and philosophy.

My aim in this paper is to explore the relationship between two theses about perceptual processing and its contents. The first thesis is that early vision is cognitively impenetrable. This empirical claim amounts to denying that either early visual information processing itself or its output can be directly causally influenced by prior cognitive states, including background beliefs, goals, affective states, and tacit knowledge (Pylyshyn, 1980, 1984, 1999). Early vision is, in Fodor’s (1983) understanding, informationally encapsulated or, as it will be characterized here, cognitive impenetrable. The second, philosophical, thesis—perceptual nonconceptualism—is that the personal-level content of perceptual experiences, i.e., how we consciously represent the world in perception, does not involve concepts.1

It has recently been argued that these two theses are mutually entailing: that the (alleged) cognitive impenetrability (CI henceforth) of early vision is a necessary and sufficient condition for perceptual nonconceptualism about states of early vision and their content (Raftopoulos, 2009, this issue; Raftopoulos & Müller, 2006). Raftopoulos (this issue) is entirely dedicated to the defense of this claim, i.e., to defending the view that, on the assumption that all and only early vision is cognitively impenetrable, “the CI of a state and content is a sufficient and necessary condition for the state and its content to be purely NCC, the CI = NCC thesis” (this issue).2 In what follows, I will refer to Raftopoulos’ CI = NCC thesis as the mutually entailing thesis (MET henceforth).3 According to MET, CI is true if and only if perceptual nonconceptualism is true of early vision states and their content. In this paper I argue that no such relationship of necessity or sufficiency holds between the two theses.

It is important to acknowledge from the start that both the evidence and type of considerations that could be brought to bear on the plausibility of MET will depend on whether it is supposed to be a conceptual truth (such as “a person is a bachelor if and only if he is an unmarried man”), a contingent truth (such as “a creature has a heart if and only if it has a kidney”), or, rather its truth is supposed to be of the kind exhibited, for example, by the biconditional: “a liquid is water if and only if its chemical structure is H2O” (considered by many to be a necessary a posteriori truth). Note, first, that if MET was considered a conceptual truth, then the CI of early vision and perceptual nonconceptualism would have to be treated not only as mutually entailing, but also conceptually equivalent. It is fair to assume, however, that this is not what Raftopoulos is trying to establish, since—as a conceptual truth—MET would be true, but trivially so. Its truth would be based on making ‘nonconceptual’ and ‘cognitively impenetrable’ not only coextensive, but also synonymous.4 It also seems fair to assume that MET is
not intended “merely” as a contingent truth, since Raftopoulos’ defense of MET alludes to and attempts to capture the motivations and considerations pertaining to the philosophical debate on perceptual nonconceptualism. Such a defense makes it very clear that his project is conceived as a substantial contribution to our understanding of the notion of nonconceptual content and to that philosophical debate—where the property of being nonconceptual is not construed in empirical but in constitutive terms. Hence, it seems appropriate to take MET as a claim intended to be an a posteriori necessity. Or, whatever one’s take on the notion of a posteriori necessities, it seems appropriate to take MET as a claim of the same type as “a liquid is water if and only if it is H₂O.” In both cases, what is taken to be a necessary and sufficient condition for being something else (be it water or nonconceptual content) is a property whose instantiation is decided by empirical methods (H₂O and CI, respectively). In each case, it is assumed that we have some pre-theoretical understanding of ‘water’ or ‘nonconceptual’. It is just that, unlike ‘water’, which is a folk theoretical term, ‘nonconceptual’ is a theoretically sophisticated notion and its meaning has attracted a not insubstantial amount of philosophical discussion. Hence, one needs to tread carefully when assessing the plausibility of MET as a thesis involving this notion.

It is also important to notice that, in the formulation of MET, the content of the output states of early vision processing is regarded as personal-level content. These early vision output states may very well be unstable, imprecise, and swiftly processed; but they are taken to be experiences, albeit short-lived, of properties of which we are phenomenally aware—or so I grant the advocates of MET. My strategy will be to explore the consequences of CI with regard to the nature of the personal-level content of these early vision processing output states (EVS henceforth).

The paper is organized as follows. Section 2 provides some empirical background on visual information processing that helps spell out CI. Here, the causal and direct nature of the kind of influence that the notion of CI rules out will be clarified. In section 3, after clearing up some terminological issues, I show that MET admits two different standard interpretations, depending on how we understand the property of being nonconceptual—corresponding to the, by now well-known, distinction between the state and the content views of perceptual nonconceptualism (Heck, 2000; Speaks, 2005). In section 4, I argue that, on the state view of nonconceptualism, according to which being nonconceptual is a relational property such that the subject need not possess the concepts involved in a correct characterization of the content of their EVS, MET fails—on the grounds that it mistakenly takes being nonconceptual to be a causal instead of a constitutive relationship. In section 5, I argue that on the stronger content view of nonconceptualism—according to which being nonconceptual is understood as a monadic property of the content of an EVS: the property of not being composed of concepts—MET is disproved by plausible views regarding the content of experience. Sections 4 and 5 together thus show that MET is false on either standard interpretation of ‘nonconceptual’, and that the CI of EVS and their content is neither a necessary nor a sufficient condition for nonconceptualism about EVS or their contents to be true. Some brief, concluding remarks are then provided in the final section.
2. Early Vision Information Processing and EVS

Early vision comprises both the set of mechanisms sensitive to the causal influence of low-level visual properties and the output states of the processing carried out by those mechanisms. Although somewhat dated and often seen as over simplistic, I briefly rely here on Marr’s (1982) seminal work to illustrate the idea that early vision involves several levels of visual information processing, usually grouped into two: the so-called primal sketch and the 2½-D sketch levels. My aim is not to provide a scientifically sophisticated picture of the workings of human vision; I am merely borrowing from Marr’s model as a way of bringing to the fore the existence of different levels of visual information processing within early vision. The main idea is that these primitive and mid-level processes certainly do display some of the properties that Marr’s primal sketch and 2½-D sketch levels originally posited. At the primal sketch level, the raw output from the rods and cones of the retina provides a gray-scale representation. Sharp changes in the intensity of light are computed as object boundaries. Oriented edges, bars, ends, and blobs are represented in terms of type, position, orientation, scale, and contrast. At the 2½-D sketch level, edges, bars, ends, and blobs are integrated so as to represent the shape, orientation, and depth of the visible surfaces, which are thus separated from the background. On Marr’s view, at this 2½-D sketch level, the visual system is sensitive to the properties of motion, color, and texture. It can also complete, in a viewer-centered coordinate system, contours that are only partially present in the input image. There is no object recognition yet, but there is phenomenology, i.e., there is a conscious, even if demonstrative, recognition of the aforementioned properties. Object recognition does not take place until the processing of information reaches the 3-D sketch level, and it is based on a modular and hierarchical grouping of volumetric and surface primitives that relies on memory, knowledge, and judgment. At that level, usually called ‘high-level vision’ or ‘late vision’, object recognition is not bound to a viewer-centered coordinate system.

To make the position against which I intend to argue as strong as possible, I will assume a division between early and late vision that respects the traditional Marr-style picture of visual information processing. Within this traditional hierarchical approach to vision, there is little question that the processing of information at the primal sketch level is a bottom-up process, encapsulated, and isolated from any higher-level background cognitive state. Also uncontroversial is the claim that, in contrast, both the processing of information at the 3-D sketch level and the content of its output states are permeable to top-down influences from those background states, since late vision is indeed characterized as encompassing those aspects of visual perception that reflect influences from memory, context, and knowledge. It is thus visual representation at the 2½-D sketch level that emerges as most relevant when discussing CI vis-à-vis the content of the states of early vision; for the content of the primal sketch level representations could plausibly be considered subpersonal. Yet we typically experience, i.e., we are phenomenally aware of, color, shape, and texture—all properties represented at the 2½-D sketch level. EVS, it can now be further clarified, are the visual representational states that are characteristic of the 2½-D sketch level.
As mentioned above in the Introduction, the claim that EVS are cognitively impenetrable entails that there cannot be any direct causal influence from prior cognitive states on the content of EVS. A direct causal influence is taken to be a causal influence on the processing of input information that is not mediated by attention or by any prior cognitive (including affective) states. My belief that it is time to turn the oven off, for example, may influence what I see by causing me to move my eyes in the direction of the kitchen clock. Such an influence, however, is not taken to be direct in the sense relevant for CI; for in this case my belief determines only where I direct my attention, not what I see once I am looking there. CI means that pre-existing cognitive states can have no causal influence on the processing of input information (Shea, forthcoming); it does not question that the input we end up processing is a result of what we attend to.

It is not just the role played by spatial attention that matters for making a causal influence indirect, in the sense that is relevant for CI; so-called feature/object-based attention (i.e., the attention we pay to particular features of objects, such as their color) is also deemed to alter the content of our EVS only indirectly. The notion of indirect causal influence as it applies to feature/object-based attention, however, is anything but clear. The idea seems to be that, for prior representational or affective states to have an influence, we have first to recognize the object we are looking at; and object recognition does not take place until the 3-D sketch level, which is already outside early vision. Neither spatial nor feature/object-based attention—considered to be indirect causal influences that occur, respectively, pre- and post-perceptually—is thus regarded as a threat to CI (Pylyshyn, 1999; Raftopoulos, 2009).

Last, but not least, if CI is true, there cannot be any direct causal influence on the content of EVS that is semantically or rationally related to the content of some prior representational or affective state. In other words, a case such as the following does not count as cognitive penetration: my belief that today is the day of an important exam causes me to experience some flashing lights as the result of my anxiety about the exam (Macpherson, 2012, p. 26). Even though my belief caused the apparent light flashes, the content of the belief and the content of the experience are not logically or rationally related. Putting together all these considerations, and adapting Siegel’s (2012) but also Raftopoulos’ own (this issue) characterization of cognitive penetrability, CI could be formulated as follows:

CI: EVS are cognitively impenetrable if and only if it is nomologically impossible for two subjects (or for one subject in different counterfactual circumstances, or at different times) to be in EVS with different contents, as a result of differences in other cognitive (including affective) states whose contents are semantically related, while seeing (sharing the same proximal stimulus) and attending to the same distal stimuli under the same external conditions.

Two (related) caveats about the above formulation of CI are in order. First, CI is not intended as a bulletproof definition. It could very well happen that, due to some quirkiness of the visual system architecture, some changes in the deployment of attention or eye behavior would just be incidental and would therefore not exclude an experience to count as cognitively penetrated. Consider, for example, the case of a type
of experience such that the presence of a cognitive state \( C \) not only alters the content of the subject’s EVS, in an appropriate semantically related way, while seeing \emph{and attending to} the same distal stimuli under the same external conditions, it also systematically causes—with nomological necessity—the subject to blink more often than she would otherwise have. Suppose that it is the presence of \( C \) and not the extra blinking that is doing the job here, as the extra blinking has no effect whatsoever on the content of the resulting EVS. If the alteration of the viewing conditions is of this kind, the existence of these incidental effects should not exclude the case from counting as a case of cognitive penetration according to the proposed characterization of CI. “Seeing and attending to the same stimuli under the same external conditions” should be read as ruling out only effects on EVS mediated by attention, eye movements, and the like that are \emph{relevant}—i.e., causally efficacious, as opposed to incidental—for the content of the resulting proximal stimulus, which in the case of vision, is the retinal image.

This brings me to the second caveat. By focusing on the claim that the relevant viewing conditions are those related to the proximal stimulus of the perceiver(s), I want to capture the idea that the proximal stimulus and the characteristics of the sensory organ (e.g., diameter of the pupils, torsion of the eyes, etc. in the case of the eye) have to remain fixed. When considering vision, the retinal image has to be the same.\(^{10}\)

In what follows, I discuss whether the (assumed) CI of EVS, understood as expressed in CI, and keeping in mind these caveats, is a sufficient and necessary condition for their content to be nonconceptual.\(^{11}\)

3. Philosophical Qualifications and Two Versions of Nonconceptualism

Just to be absolutely clear, MET is a claim about representational states. Being representational, EVS are states with content. By being in an EVS with a particular content, the subject is thereby representing the world as being a particular way. The content of an EVS is specified, as is the content of any other kind of representation, by the conditions under which it would be true (veridical). Furthermore, EVS are conscious representational output states: their content is personal-level content. EVS thus represent properties of which we are phenomenally aware—with phenomenal awareness characterized along the lines of Block’s classic (1995) notion of phenomenal consciousness. It thus seems appropriate to talk about EVS as visual experiences, even if each of them is “a ‘fleeting’ experience that lacks the sharpness of ordinary experience, on account of the fact that phenomenal contents lack spatial and temporal coherence” (Raftopoulos & Müller, 2006, p. 208). As experiences, EVS would have phenomenal character—there would be something it is like for a subject to be in them. Raftopoulos explicitly claims:

I assume that early vision despite its being a pre-attentional stage of visual processing includes content at the phenomenal level, in addition to its subpersonal information processing content. One can have some sort of awareness, phenomenal awareness, of perceptual contents that are formed pre-attentionally. (this issue)
Although not everyone agrees, there seems to be a close relationship between the phenomenal character of a visual experience and its representational content. The discussion in this paper will assume such a close relationship, but will remain neutral on whether that relation is one of supervenience or identity. I am here only committed to the advocates of MET’s claim that “perceptual states have a phenomenal character in virtue of having some kind of representational content” (Raftopoulos, 2009, p. 154).

The meaning of ‘nonconceptual’ is a more controversial matter. There are two interpretations of the term (Heck, 2000; Speaks, 2005; Tye, 2006). According to the first interpretation—which, following Heck’s terminology, I call the state view—being nonconceptual (nonconceptualₚ henceforth) is understood as a relational property between a subject’s perceptual state and the content of that state. Content is nonconceptual, if and only if the subject who is in a perceptual state (at a time) need not possess (at that time) the concepts involved in its correct characterization.

According to the second interpretation—which again, following Heck’s usage, I call the content view—being nonconceptual (nonconceptualₖ henceforth) is considered to be a monadic property of the content of perceptual states. Since beliefs are, paradigmatically, states with conceptual content, the content view is often formulated as follows: the content of a perceptual state is nonconceptualₖ if and only if it is different in kind from the content of beliefs. This difference in the kind of content can be characterized in a variety of ways. It may be that the content of belief is propositional, while perceptual content is not. Or it may be that both are propositional, but that belief content is structured while perceptual content is not—it is, for example, a function from possible worlds onto truth values. Or it may be that the content of both belief and perception is propositional and structured, but the constituents of the propositions are Fregean senses in the case of belief and Russellian propositions in the case of perception (Speaks, 2005).

Now, in his defense of MET, Raftopoulos makes it very clear that the relevant contrasting notion of conceptual content in his account is Fregean. Hence, according to the target view, to claim that the content of EVS is nonconceptualₖ amounts to claiming that it is not composed of (Fregean) modes of presentation. MET thus admits two different readings depending on whether the CI of EVS is taken to be a necessary and sufficient condition for their content to be nonconceptualₚ (MET-state) or nonconceptualₖ (MET-content).

MET-state: A subject need not possess the concepts involved in a correct characterization of the content of their EVS, E, if and only if E is cognitively impenetrable.

MET-content: The content of a subject’s EVS, E, is different in kind from the content of beliefs if and only if E is cognitively impenetrable.

Interestingly, Raftopoulos explicitly rejects the distinction between the state and the content views of perceptual nonconceptualism. He does so for two reasons. The first is that “most accounts of NCC are better understood as referring to both contents and states” (Raftopoulos, this issue). The second reason is “that it does not make much of a sense to talk about states without reference to the kind of content they
have . . . [because] the structure of contents must be reflected in the structure of their vehicles/states” (Raftopoulos, this issue). However, it does seem appropriate to engage in critical analysis of MET along these two different interpretations, since Raftopoulos repeatedly, especially throughout his paper in this issue, characterizes the property of being nonconceptual as a property that applies both to states of early vision and to their content. Here is yet another illustration of this:

the existence of CI processes that extract information directly from the environment is both a necessary and sufficient condition for NCC. Thus, content P of a perceptual state S of X is such that the processes by virtue of which X is in S and has an experience as of P cannot, in principle, be affected directly by cognitive processes, if and only if P and S are nonconceptual; this is the CI $\equiv$ NCC thesis. (Raftopoulos, this issue)

Furthermore, Raftopoulos’ replies to possible objections to MET show very clearly which of the two interpretations he is relying on—as will become apparent in the next two sections. Hence, even if it turns out that the state and content views cannot ultimately be distinguished on a certain understanding of concepts and concept possession, it still makes sense, given the dialectics in this paper, to explore both interpretations with regard to MET.

4. MET-State

In this section, I argue that MET is false when understood as MET-state, and offer a diagnosis of the confidence with which its advocates endorse the thesis.

Let us begin with the sufficiency claim of MET-state: if an EVS, E, with content $p$ is cognitively impenetrable, then a subject need not possess the concepts involved in a correct characterization of $p$. Here is Raftopoulos on the matter:

The definition of the CI of early vision stipulates that early vision is not directly affected by cognitive states and, thus, its contents are conceptually encapsulated through top-down effects. Concepts can figure in early vision content either by being there from the beginning or by penetrating early vision content in a top-down manner . . . . The second possibility is excluded by my assumption that early vision is CI. All these together mean that one can be in an early vision state with some content without possessing or applying the concepts that should be used to describe the relevant content. It follows, in view of the standard definition of NCC, that this content is NCC [emphasis added]. Thus, if some content is CI, it is NCC (the sufficiency claim). (this issue)

Here is a sketch of argument in standard form:

1. Early vision is cognitively impenetrable (assumption).
2. If concepts played a role in early vision, then it could only be because concepts are hardwired or because they penetrate early vision.
3. Concepts (as Fregean senses) cannot be hardwired.
4. Concepts cannot penetrate early vision (by 1).
5. A subject can be in an EVS with content $p$ without possessing or applying the concepts that would correctly characterize $p$ (by 1, 2, 3, and 4).
6. That a subject can be in an EVS with content \( p \) without possessing or applying the concepts that would correctly characterize \( p \) just means that \( p \) is nonconceptual (by the definition of ‘nonconceptual’).

Conclusion: if the content of EVS is cognitively impenetrable, it is nonconceptual.

I grant Raftopoulos that a notion of concept as hardwired in early vision—as is, for example, Pylyshyn’s (2007) notion of codes for proximal properties—is too theoretically alien to match the relevant notion in the nonconceptualism debate. I grant, in fact, premises 1, 2, 3, and 4. Premise 5 is what Raftopoulos takes to be the consequent of the sufficiency claim. Let us assume for a moment that it is indeed the consequent of the sufficiency claim, even though it is not. How is it supposed to follow from 1, 2, 3, and 4? What seems to follow from 1–4 is that concepts do not play a role in early vision. However, what Raftopoulos concludes in premise 5 is something different, namely, that the subject does not possess the concepts. But, of course, the fact that concepts do not play a role in early vision does not entail that the subject does not possess them.

More important for my purposes is the fact that premise 5 does not even capture the standard definition of state nonconceptualism. Both premise 5 and premise 6 are problematic for this reason. What is here considered to be the definition of ‘nonconceptual,’ differs from the standard definition that appears in MET-state. The standard definition of ‘nonconceptual,’ according to state nonconceptualism, refers to a relation in which a subject need not possess (apply) the concepts required to correctly characterize the content of her states. Yet, that a subject need not possess \( C \), involved in a correct characterization of the content, \( p \), of an EVS, \( E \), does not entail that the subject cannot have those concepts. That a subject need not possess \( C \) only rules out the subject’s having to possess \( C \) in order to be in \( E \). So, let us assume that \( E \) is cognitively impenetrable, so that no background cognitive state can directly causally affect \( E \) in a way that alters \( p \). Why would this claim be incompatible with the claim that the subject has to possess \( C \) in order to be in \( E \)? A subject—it could be argued—may need to possess certain conceptual capacities in order to be in \( E \) with a particular content, \( p \). And this is, at least on occasion, indeed the case precisely because the content of EVS, we are told, is personal-level content, and hence \( p \) should play a role in the way having an experience with such content entitles us to a belief. And \( E \) may not be able to play that role if the subject does not have the concepts involved in a correct characterization of \( p \). Yet, in granting the need to exercise such conceptual capacities, we do not have to commit ourselves to their having any direct causal influence on \( E \) in such a way as to change its content. In general, a subject’s possession of \( C \) may be constitutively required for their being in an EVS, \( E \), with content \( p \)—because without \( C \), \( p \) could not play the rational role expected of personal-level content—even if \( E \) is cognitively impenetrable. Therefore, the sufficiency claim of MET-state is false.

It looks as if behind the sufficiency claim of MET-state there is a rather non-standard understanding of nonconceptual as being a causal rather than a constitutive relationship. The sufficiency claim amounts to denying that EVS could be CI while
their content is conceptual. Properly understood, the claim that the content \( p \) of an EVS is conceptual is synonymous with “S needs to possess the concepts \( C \) involved in a correct characterization of \( p \).” However, Raftopoulous takes this claim as equivalent to “\( E \) directly causally depends on \( C \) for its tokening,” which just means that \( E \) is cognitively penetrable. It thus comes as no surprise that, on this second, causal understanding, the negation of both CI and (state) conceptualism (the sufficiency claim) appears plausible. It appears plausible because it is the negation of a contradiction: it denies that EVS both are impenetrable and penetrable.

State (non)conceptualism, to be clear, is not a claim about the causal independence between a subject’s states and their content. Rather, it is a claim about what is (or is not) constitutively required of a subject in order for them to count as being in a state with a particular content—the appropriate kind of personal-level content. So, the CI of an EVS, \( E \), is perfectly consistent with the requirement that \( S \) possesses the relevant concepts—those concepts, \( C \), without which \( E \) could not play the functional role that is distinctive of a state with personal-level content. When being nonconceptual is construed as a causal instead of a constitutive relationship, the claim that the content of EVS is nonconceptual is tantamount to claiming that EVS are cognitively impenetrable. So, were we to understand the sufficiency claim of MET-state in causal terms, that claim would be true, but trivially so.

What about the necessity claim of MET-state? If a subject need not possess the concepts, \( C \), involved in a correct characterization of the content, \( p \), of their EVS, \( E \), then \( E \) is cognitively impenetrable. Here again is what Raftopoulous offers as way of an argument, this time, in favor of the necessity claim:

Burge’s and Martin’s discussions of NCC emphasize the extraction of information from the environment through direct causal links without conceptual involvement as a necessary condition for NCC. This requires a perceptual stage that extracts information from the world in conceptually unmediated ways. A perceptual stage that extracts information in conceptually unmediated ways is a stage of visual processing that is CI. This intuitively leads to the view that NCC is the content of perceptual states that are CI. In other words, if some content is nonconceptual, it is CI (the necessity claim).

Raftopoulous’ strategy is, first, to appeal to what he takes to be standard characterizations of the notion of nonconceptual content, i.e., Burge (1977) and Martin (1992). Interestingly, though, although both Burge’s and Martin’s original formulations make it clear that they have something like MET-state in mind, Raftopoulous’ own gloss of their characterization of the notion seems to be here already biased toward a causal understanding of the property of being nonconceptual. The first premise in his argument is thus unclear. “Extracting information in conceptually unmediated ways” could be read as stating that nonconceptual content is the content of representations formed “through direct causal links.” Or it could be read as stating that nonconceptual content is the content of those states a subject could be in without needing to possess the relevant concepts. Raftopoulous is, however, much clearer about the notion he is relying on just a few paragraphs after the quoted passage. “According to the standard definition of NCC,” he claims, “a person’s state \( S \) with
content p has NCC iff the person need not possess or apply the concepts used to characterize p” (Raftopoulos, this issue). Although the ambiguity in the reading supports my interpretation of Raftopoulos’ underlying causal understanding of the notion of nonconceptual content, I shall follow at this point the openly endorsed MET-state characterization as the (more charitable) reading of the first premise and return to the causal understanding of the property of being nonconceptual later in this section.

The second premise of the argument takes the very notion of a state whose content represents a state of affairs in unmediated ways to amount to the very notion of CI. From both premises, he concludes that, if some content (the content EVS, as only EVS represent in this conceptually unmediated way) is nonconceptual, then it is cognitively impenetrable—the necessity claim.

The necessity claim thus understood would turn out to be false if we could show that S need not possess C, and yet E is cognitively penetrable. As before, it is important to keep in mind that not needing to possess C does not entail that the subject does not possess them; it only rules out the subject’s having to possess such concepts. To illustrate that just such a situation may obtain, Bermúdez and Cahen (2011) appeal to Tye’s (1995, 2000) analysis of our visual experiences of ambiguous figures such as the duck/rabbit. Tye’s view, they contend, allows for situations in which a subject would have a disambiguated visual experience of an ambiguous figure—let us say, they would experience the duck/rabbit as a rabbit—as a result of having deployed the concept rabbit. The experience would thus be cognitively penetrable. Yet, the subject did not have to possess the concept rabbit to undergo an experience with the same content, so the content of their experience is nonconceptual. Here is Tye on this issue:

Where a figure has an ambiguous decomposition into spatial parts, concepts can influence which decomposition occurs. This is one way in which top-down processing can make a phenomenal difference. But once a particular decomposition is in place, the way in which an ambiguous figure phenomenally appears is fixed . . . the concepts do not enter into the content of the sensory representation and they are not themselves phenomenally relevant. (1995, p. 140)

In general, the phenomenal character and hence (for a representationalist like Tye) the content, p, of an EVS, E, may very well be the same regardless of whether the subject possesses the concepts, C, involved in a correct characterization of p or not. Therefore, the necessity claim of MET-state seems to be false.

The standard rejoinder to this objection appeals to the role of spatial attention, as discussed in section 2 above. Raftopoulos (this issue) develops it along the following lines. Tye’s analysis does indeed allow for top-down causal influence of concepts on the disambiguated experiences of an ambiguous figure; but CI is consistent with such a top-down influence because the causal influence here is not direct, it only affects the phenomenal character of what is perceived by determining first, through attention, which of the two figures we perceive:

What one chooses to attend to may be determined by cognitive factors, but this type of attentional modulation occurs before the operation of early vision and does not directly causally affect early vision. (Raftopoulos, this issue)
The content of disambiguated perceptual states is the result of the role that concepts play in determining where we first fix our attention. Their influence is thus indirect, occurs pre-perceptually, and poses no threat to CI.\textsuperscript{18}

The difficulty with this rejoinder is twofold. First, it seems again to presuppose a causal understanding of the property of being nonconceptual. Otherwise, were we to interpret the antecedent clause of the necessity claim along the required state-nonconceptualist lines—a subject $S$ need not possess the concepts involved in a correct characterization of the content of their EVS—nothing would follow regarding the direct or indirect causal influence exerted by those putative concepts that $S$ can have, even if $S$ need not have them. In other words, the antecedent in the necessity claim of MET-state is a conceptual statement, and as such, its truth does not entail that any purported causal influence from the relevant cognitive states on a subject’s EVS is direct or indirect. The entailment would only follow if ‘nonconceptual’ was treated, in this context, as synonymous with ‘conceptually encapsulated’, i.e., with ‘cognitively impenetrable’—as the notion is defined in CI.\textsuperscript{19}

Second, remember that we are trying to assess whether it is the case that if subjects need not possess the concepts involved in a correct characterization of the content of their EVS, then EVS are cognitively impenetrable. Obviously, putative counterexamples would be situations in which EVS are cognitively penetrable by concepts, which subjects need not possess in order to have such experiences, but which they do possess—otherwise the issue of CI would not even arise. We are told that cases such as the disambiguated perception of ambiguous figures are not counterexamples to the necessity thesis because the causal influence of the concepts invoked is not a direct causal influence. Furthermore, a notion of cognitive penetrability that allowed for such an indirect influence of the relevant concepts—Raftopoulos (this issue) calls it “the intuitive notion of CP”—ought to be dismissed. However, if we stick to the technical notion of CI, the causal influence of this type of concepts in perception will always be indirect. All putative counterexamples to the necessity claim of MET-state based on the influence of concepts of properties represented at a higher level than early vision, such as the concepts of a duck or a rabbit, will necessarily be cases in which the subject’s perceptual experiences will absorb and conceal whatever phenomenal character the output states of early vision processing, i.e., EVS, may have. That is because the perceptual experience of a rabbit, for example, necessarily involves object recognition, and object recognition takes place at the late stage of visual information processing. In such cases, there will be no output states of early vision processing that are not, immediately and without leaving any phenomenal trace, turned into the input states of late vision processing. Insofar as EVS are the output states of early vision processing, those states seem to have been left void of any phenomenal character in occasions like these. The “indirectness of attention” strategy thus seems to belie the claim that we are phenomenally aware of the properties represented by EVS when the influencing concepts are concepts of properties represented outside early vision.
5. MET-Content

In this section I examine MET understood as a claim about the relationships between the CI of EVS and the kind of content such experiences have: MET-content. Remember that according to MET-content: the content of a subject’s EVS, $E$, is different in kind from the content of beliefs if and only if $E$ is cognitively impenetrable.

A methodological caveat is in order here. As I pointed out in section 3, by considering the Fregean view to be the relevant account of conceptual content in the present context, I only restrict the array of possible counterexamples to MET, thus shoring it up against relatively easily dismissible objections. It may thus help to keep in mind the following, more specific characterization of MET-content: the content of a subject’s EVS, $E$, is different in kind from the content of beliefs, i.e., it is not composed of Fregean modes of presentation, if and only if $E$ is cognitively impenetrable.

Raftopoulos’ line of argument is pretty straightforward with regard to the sufficiency claim of MET-content: to assume, first, that early vision is cognitively impenetrable; to argue, second, that no concepts are already built in the early vision system. If early vision is cognitively impenetrable and concepts do not directly influence EVS, and the early vision system does not contain concepts, then “concepts do not enter early vision in a top-down manner. As a result, concepts do not exist in the contents of early vision, which means that these contents are not conceptually structured; the content of early vision is NCC” (Raftopoulos, this issue). In other words, if early vision is cognitively impenetrable, then the content of early vision is not Fregean.

It is easy to agree with Raftopoulos that the only notion of concept that could be used to argue against the sufficiency claim of MET-content is the notion of Fregean modes of presentation. ‘Concepts’ in any other sense would not be the kind of entities to which MET-content refers. However, there does not seem to be any reason why EVS could not be cognitively impenetrable and thus free of any direct causal influence from concepts while their content is Fregean content. It does not seem inconsistent—and it may even be plausible—to hold that the content of EVS is composed of (perhaps indexical) Fregean modes of presentation, while at the same time endorsing the truth of CI. Modes of presentation, as the notion is applied in the analysis of experience, are the ways objects and properties look to us, as opposed to the ways objects and properties are given to us in thought. Modes of presentation, importantly, need not be explicitly represented by the subject.

Chalmers’ (2004, 2006) account of phenomenal content could be considered to be a view along these lines. He argues that visual experience has both Fregean and non-Fregean—Russellian or unstructured—content; yet, it is the mode of presentation that captures the phenomenology and hence the phenomenal character of experience, while the (imperfect, in Chalmers’ account) veridicality of experiences depends on non-Fregean content. This, of course, is not the place to try to sum up Chalmers’ complex two-dimensionalist account of phenomenal content; or to endorse it. However, if we can draw upon the idea of the mode of presentation of objects and properties in experience to capture the phenomenal character of EVS, and if such modes of presentation can also be the key notion in characterizing the content of conceptual
states such as beliefs, then it is not the case that the (alleged) CI of EVS necessarily establishes that their content is nonconceptual, i.e., it is not the case that the (alleged) CI of EVS necessarily establishes that they do not have the same content as beliefs.

According to a view such as this, the content of an EVS, $E$, when I see and attend for example to the redness of a cut-out heart shape with color R/4/12, is the way the color R/4/12 appears to me. This mode of presentation introduces a constraint on the conditions of satisfaction of my experience by making R/4/12 the property represented by my EVS. The mode of presentation can be understood as the property that normally causes phenomenally red R/4/12 experiences (Chalmers, 2004, pp. 172–173). Yet, appealing to Fregean concepts of this kind does not entail that there is any direct top-down causal influence of the relevant concepts (i.e., the concept red, the concept red R/4/12 or any demonstrative concepts) on the content of $E$. The content of EVS would then be, as the content of belief is, conceptual: composed of Fregean modes of presentation; but the relation between a subject’s EVS and their content would be nonconceptual. Here is Chalmers on this idea:

These nonconceptual Fregean contents need not themselves be a different sort of object from conceptual Fregean contents. For example, it could be that an experience as of a red object and a belief that completely endorses it have the same Fregean content. Instead, one might say that the Fregean content of perception involves a nonconceptual content relation: the relation that associates perceptual states with their Fregean contents is such that subjects need not possess the relevant concepts in order for their states to have the relevant content. (2006, p. 122)

The motivation for a view such as this stems from our pre-theoretical nonconceptualist, intuitions about non-concept possessing creatures being able to undergo visual experiences with phenomenal character and conditions of satisfaction that match those of concept-possessing creatures, while also allowing for the conceptualist view that the world, as we perceive it, is always conceptualized, i.e., it always appears to us under a particular mode of presentation—in some way or another.

Let me now move on to examine the necessity claim of MET-content. Raftopoulos’ strategy consists of first characterizing nonconceptual content—understood as content that is not conceptually structured—as content that “is retrieved in a stage of visual processing that is CI” (Raftopoulos, this issue). He relies heavily on vision science for this purpose and provides a detailed account of the nature of information processing in early vision in terms of a feed-forward sweep in which the only signals that intervene are transmitted bottom-up with no influence whatsoever of signals from higher-level cognition. This account highlights the timing of the processing of information, which is taken to last around just 120 milliseconds. The content of the output states of such bottom-up processing of visual information is regarded as (purely) nonconceptual content. From this characterization, Raftopoulos concludes, “thus, if some content is purely NCC, it is CI” (this issue). If some content—the content of EVS—is not conceptually structured, then it is cognitively impenetrable. Given the constraints on concepts discussed above, the necessity claim of MET-content amounts to the following: if the content of EVS is not composed of Fregean concepts, then EVS are cognitively impenetrable.
The necessity claim would thus be false if the content of EVS was not composed of Fregean concepts, but EVS were nevertheless cognitively penetrable. Such a view seems again not only to be consistent but also plausible. Suppose the content of EVS is characterized in non-Fregean terms—as either Russellian propositions or functions from possible worlds to truth-values. Suppose the concepts the subject needs to possess, if cognitive penetrability is to occur, are taken to be Fregean concepts—to fit Raftopoulos’ broader picture. Why could not the concepts a subject has, characterized as Fregean concepts, causally (and rationally) directly influence the content of her EVS, characterized as Russellian propositions or functions from possible worlds to truth-values? The worry here seems to be that thought (conceptual states) cannot rationally influence EVS (perception) unless they both have the same kind of content, i.e., conceptual content—a top–down version of the worry that haunts perceptual conceptualists like McDowell.

This worry, however, will become compelling only if we endorse the idea that rational relationships between thought and perception can only occur within states with conceptual content (McDowell, 1994, p. 143). Yet, this additional premise has proven to be quite controversial, as it is based on what Wright (1998, p. 400) calls a “quasi-inferential conception of empirical justification.” Indeed, most perceptual nonconceptualists (such as Heck, 2000; Peacocke, 1992) defend the view that some of our cognitive states, such as our perceptual beliefs, can be noninferentially justified just by the fact that the subject has the relevantly related perceptual experiences. In a nutshell, for the perceptual nonconceptualist, perceptual experiences with nonconceptual content can and do give a subject reasons for her relevantly related perceptual beliefs because the fact that things appear to the subject as if \( p \) (where the content of \( p \) should be here understood as nonconceptual) means that the subject is in a state on whose basis she would judge that \( p \), were she to judge solely on that basis (Heck, 2000, p. 519). If the rational influence of perception on thought can thus be accounted for, why should the same rational influence not work in the opposite direction? At the very least, the plausibility of the necessity claim of MET-content would require an additional argument designed specifically to rule out this type of considerations. Taken on its own, the claim that the content of EVS is nonconceptual does hence not rule out the nomological possibility that two subjects sharing the same proximal stimulus and attending to the same distal stimuli under the same external conditions could have different EVS as a result of differences in other cognitive states. Therefore the necessity claim of MET-content is false.

Since both the sufficiency and the necessity claims of MET-content turn out to be false, and since it is only on this reading of MET that CI could be used to settle the issue of what type of content EVS have, I conclude that that CI, on its own, falls short of settling the nature of their content.

6. Conclusion

If the arguments put forward in this paper are sound, MET is false on either standard interpretation of ‘nonconceptual’ and hence there is no philosophical interpretation of the thesis according to which the (alleged) CI of EVS is a necessary and sufficient condition for EVS and their content to be nonconceptual. MET could only be true
according to some non-standard, causal interpretation of the notion of nonconceptual content—one which makes 'nonconceptual' and 'cognitive impenetrable' not only coextensive but synonymous. Yet, on that reading, the thesis would either be trivially true or would entirely fail to engage with the contemporary philosophical literature on perceptual nonconceptualism.

Could MET, however, if taken just as a novel, empirically oriented, proposal about the meaning of 'nonconceptual', engage with research carried out in other fields, such as psychology? Could there still be some value in this novel causal characterization of a classic philosophical notion such as the notion of nonconceptual content? I conclude by briefly addressing this issue. The suggestion I would like to put forward is that Raftopoulos' alien reading of the notion of 'nonconceptual' captures a certain strategy for interpreting results in psychology and vision science that is often used to explain away potential cases of cognitive penetration.

I will focus on color, since color is one of the properties represented at the early stage of visual processing. Evidence from classic experiments about color perception seems to give initial support to the view that our beliefs about objects with characteristic colors cognitively penetrate our experiences of the colors of such objects (Delk & Fillenbaum, 1965; Hansen, Olkkonen, Walter, & Gegenfurtner, 2006; Olkkonen, Hansen, & Gegenfurtner, 2008). For instance, showed the participants in their experiments different-colored digital images of objects, some of which had a typical color, like bananas, and some of which were color-neutral, such as circles. The subjects in the experiment were asked to adjust their color until all the objects looked achromatic, i.e., a particular shade of gray—a shade taken to be the mean settings subjects used to adjust the color of circles. The results showed that, for those images of typically colored objects, subjects set up a different shade of gray than that used for color-neutral objects. In the case of bananas, it was a slightly bluish shade of gray. The explanation the experimenters offered was that the subjects still perceived the gray banana as yellowish, so they had to adjust the shade of gray further away from the perceived yellow-gray shade into a more bluish one, as blue is yellow’s opponent color.

Such a way of interpreting these experiments is prima facie convivial to the idea that our color experiences of typically colored objects are cognitively penetrated by our beliefs about these objects. The general idea is that we perceive achromatic bananas as still slightly yellow, judge this to be, form a belief based on this judgment and then behave accordingly. The plausibility of this interpretation seems to be supported by the general view that how we judge the world to be, and how we thereby form beliefs about it, is based on how the world looks to us, i.e., it is based on how we perceptually experience the world as being. Those who take cases like these as instances of cognitive penetration argue that it would be just too epistemologically counterintuitive to end up judging that \( p \) if we indeed perceived something other than \( p \) (compare Macpherson, 2012).

These and other potential cases of cognitive penetration have, however, been explained away by adopting the following strategy. The results of these experiments, it is argued, illustrate how feature/object-based attention works. Our beliefs about
objects that have a characteristic color—and hence the concepts of which those beliefs are composed—have only an indirect causal influence on perception. Such beliefs/concepts may indeed affect our perception of the colors of the objects, but only when the subject recognizes the object as pertaining to a particular category and forms a judgment. Early vision, in contrast, remains cognitively impenetrable to any such cognitive operations. So our beliefs/concepts about objects that have a typical color do not alter the way in which we experience the color of such objects; they do not affect our color EVS. Instead, they affect our color judgments. Zeimbekis (2013) presents these reported effects as cases of selection bias in perceptually difficult tasks. Attending to figures of typically colored objects, he claims, biases the processing of color information, especially in conditions of uncertainty. In such conditions, deployment of the concepts of such objects affects our perception of their color through anchoring the relevant color concepts in subjects’ perceptual judgments. Selection bias is thus taken to be consistent with the CI. Pylyshyn’s (1999) appeal to the role of memory in the interpretation of the Delk and Fillenbaum (1965) experiment can also be considered a version of this dialectical move. Firestone and Scholl’s (2014) re-design of some classic case studies that allegedly show perceptual experiences to be cognitively penetrated also aims to show that there is no such penetration at the level of experience, but only at the level of judgment. Their slightly modified replica of such cases aims to evaluate whether the reported [top-down]effects are truly effects on perception … or whether they are effects only on perceptual judgments, memories, or responses, in ways that lie outside visual processing itself (in which case, they may not refute the cognitive impenetrability of vision). (Firestone & Scholl, 2014, p. 39)

Let us call this approach “the indirectness of judgment strategy.”

My suggestion is that the indirectness of judgment strategy helps us better understand why Raftopoulos may end up—against his own philosophical agenda—with a causal understanding of ‘nonconceptual’. The claim is not, of course, that this interpretative line lends plausibility to such causal understanding or that the philosophers, psychologists, and vision scientists involved are somewhat familiar with the (non)conceptualism debate. The claim is rather that, in locating the cognitive penetrability of mental states at the level of judgments—conceptual states par excellence—the strategy seems to assume that those other lower-level (perceptual) states that are cognitively impenetrable—states such as EVS—would be thereby, and unlike judgments, nonconceptual. This veiled association fits seamlessly into Raftopoulos’ account.

From a philosophical point of view, however, the account remains wanting. The reason is threefold. First, as I have argued in this paper, a causal take on the notion of nonconceptual is alien to the standard literature on perceptual nonconceptualism. Second, the ephemeral and bleary nature of EVS hardly makes them good instances of conscious perceptual experiences, so not much argumentative mileage can be got out of safekeeping its cognitive impenetrability. The idea comes pretty close to safekeeping the—much less controversial—cognitive impenetrability of early vision processing. Finally, even if the encapsulation of EVS is secured, the phenomenon of the cognitive penetrability of perceptual judgment is sufficiently challenging on its own, both from a
philosophical and psychological point of view, to maintain alive the interest in these topics. Modularism of the kind consistent with the indirectness of judgment strategy does not help to dispel major philosophical worries such as the possible theory-ladenness of observation (in philosophy of science) or the putative influence of social cues (gender, race, age, etc.) on the perceptual judgments that guide our responses to others (in social psychology and social epistemology). Here, as in many other areas, empirical sciences and philosophical research still have a long way to go.

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Notes

[1] I provide more precise definitions of both theses below.
[2] Although, in Raftopoulos’ paper in this issue, ‘NCC’ is meant to refer to ‘nonconceptual content’, sometimes, as in this quote, ‘NCC’ just means ‘nonconceptual’.
[3] For Raftopoulos, the states of early vision only have nonconceptual content, unlike the states of late vision, which can have both conceptual and nonconceptual content. In what follows, I will take it for granted that all talk about nonconceptual content is talk about purely nonconceptual content. I will hence omit the adverb ‘purely’.
[4] This is, however, the interpretation that seems to lie beneath some of the arguments in favor of MET. See section 4.
[5] See Raftopoulos and Müller (2006, section 3) and especially Raftopoulos (this issue).
[6] I use ‘state’ in a broad sense to include events, since experiences are technically events and not states. Nothing in my argument hinges on this distinction.
[7] For Marr, the 21-D sketch level was a specific hypothesis about the abstract task analysis involved at this intermediate level of visual processing. Much of contemporary vision science, although deeply influenced by Marr’s work, has abandoned the posited 21-D sketch level as a working hypothesis in the search for the exact nature of these, still acknowledged, mid-level representations.
[8] It may be that an alternative way of understanding the nature of visual information processing, such as the predictive coding hypothesis, yields a more porous picture of the relations between early and late vision (Friston, 2010; Friston & Stephan, 2007). I will ignore this aspect of the debate here, since, as I say, it would only weaken the position against which I argue.
[9] This semantic/rational constraint lies at the heart of standard definitions of cognitive penetrability. For example: “if a system is cognitively penetrable then the function it computes is sensitive, in a semantically coherent way, to the organism’s goals and beliefs, that is, it can be altered in a way that bears some logical relation to what the person knows” (Pylyshyn, 1999, p. 343).
Thanks to an anonymous referee for pressing me to clarify these issues and providing the blinking example.

Raftopoulos often talks about the CI of both the states of early vision and their content, and sometimes he just talks about the CI of the content of early vision (for instance, in the title of the paper). I simplify matters and talk about the CI of EVS thus encompassing both aspects, for the very notion of CI requires the content relation. Since I grant this part of MET, nothing hinges on this simplification. I also take cognitive states to always include affective states.

Alleged counterexamples to this view are provided, on the one hand, by Peacocke’s (1992) famous square/diamond case, which illustrates experiences with the same representational content but different phenomenal character. On the other hand, cases such as Block’s (1990) Inverted Earth example are meant to show that there can be experiences with different representational content but the same phenomenal character.

Of course, if content is characterized in terms of functions from possible worlds to truth-values, then beliefs will not involve concepts either (Stalnaker, 1998). However, the view that is important to consider in this context entails that there is a contrast between the (Fregean) content of belief and the content of perception. See below for further elaboration.

Note that interpreting ‘conceptual content’ in the restrictive sense of ‘Fregean content’ is a substantial thesis that needs independent support. For my present purposes, however, it suffices to say that: (i) this is how the notion is understood by the advocates of MET; and (ii) being more restrictive about what counts as conceptual content makes MET more immune to counterexamples—especially counterexamples to the sufficiency claim. I will therefore adhere to the Fregean reading so as to avoid making MET too easily refutable.

Interestingly, Raftopoulos elsewhere provides a definition of ‘nonconceptual’ that does fit the state view of nonconceptualism: “according to the standard definition of NCC, a person’s state S with content p has NCC iff the person need not possess or apply the concepts used to characterize p” (this issue).

This McDowell-style point (see his 1994) is, of course, quite controversial. I am not myself endorsing the premise that we need to deploy certain conceptual abilities for the content of perception to enter the rational domain of belief and its justification. My point is rather that, since this kind of argument could easily be put forward, Raftopoulos’ considerations fall short of establishing what he intends to.

Here is another, more general gloss on this issue. Raftopoulos’ sufficiency claim amounts to the following conditional: if thought (cognitive states) can’t influence perception, then the contents of perception can’t be constrained by the concepts in thought. However, even if thought cannot influence perception, the other direction of the relationship seems to work just fine, i.e., perception can and does cause and justify thought. My point is that such a relationship could itself place constraints on the contents of perception—including those constraints famously endorsed by conceptualists like McDowell. I thank an anonymous referee for suggesting this spin on the dialectics here.

See also Raftopoulos (2011). For discussion, see Macpherson (2012).

Raftopoulos and Müller state: “the notion of ‘nonconceptual content’ . . . is defined as the content that is retrievable from a scene through the cognitively encapsulated processes of perception” (2006, p. 190). CI and state-nonconceptualism about EVS would thus be, on this causal reading, not only mutually entailing but conceptually equivalent claims.

To wit, it would be relatively straightforward for the advocates of MET to disregard as counterexamples to the sufficiency thesis positions that involved non-Fregean notions of content, i.e., content seen as Russellian propositions or functions from possible worlds to truth values. It could be argued that these non-Fregean notions are not suitable for securing the necessary link between the ways a subject takes the world to be in experience and the abilities that count in an explanation of the subject’s intentional behavior (Toribio, 2008).
By making conceptual content Fregean content, the sufficiency claim becomes more challenging. It is also how Raftopoulos (this issue) understands the dialectics here, explicitly.

[21] Raftopoulos claims at some point that “perception has NCC, which is ... neo-Fregean” and adds:

Let me dwell on my characterization of perceptual content as neo-Fregean content. Fregean content involves modes of presentation (mops) in thought and, thus, by definition is conceptual content. In this sense, NCC cannot be Fregean content [emphasis added]. ... To distinguish NCC and its mops from the standard conceptual Fregean mops, I use the term ‘neo-Fregean’. (this issue)

It is important to note, however, that ‘neo-Fregean’ has a clear, standard meaning in debates about the nature of the content of mental representations. Neo-Fregean content is Fregean content in which the abstract, objective, and non-psychological nature of content that the original Fregean account requires is substituted for the idea of contents as ability types—also objective, non-psychological, and abstract. Yet, the instantiation of such ability-types just consists of the set of abilities that subjects exercise when they entertain thoughts. A neo-Fregean account of content, in other words, treats content as conceptual. It is thus rather misleading to use the expression ‘neo-Fregean’ in this context to mean ‘not Fregean’, i.e., nonconceptual. Nevertheless, I suppose anyone could—just by stipulation, as Raftopoulos does—decide to use ‘neo-Fregean’ in this rather counterintuitive, non-standard way. The point of my criticism remains, since I am trying to show that there is a Fregean account (in fact, it would be neo-Fregean, in the standard sense) of the content of perception—Chalmers’—that can be used as a plausible counterexample to the sufficiency claim of MET-content.

[22] The evidence, however, is not entirely conclusive. Recent experiments by Karl Gegenfurtner’s group actually fail to replicate some of these results, because (strangely) they consistently fail to find their effects for red objects. See Witzel, Valkova, Hansen, and Gegenfurtner (2011).

[23] See Durgin, Hajnal, Li, Tonge, and Stigliani (2010) and Durgin, Klein, Spiegel, Strawser, and Williams (2012) for a defense of the claim that the alleged top-down effects on slope estimates when subjects are carrying a backpack cannot be effects on perception, but rather effects on task demands (i.e., in judgments motivated by what the subjects take to be the experimenters’ expectations).

References

Bermúdez, J., & Cahen, A. (2011). Nonconceptual mental content. In E. N. Zalta (Ed.), The Stanford encyclopedia of philosophy (Summer 2011 ed.). Retrieved from http://plato.stanford.edu/archives/sum2011/entries/content-nonconceptual/

Block, N. (1990). Inverted earth. In J. Tomberlin (Ed.), Philosophical perspectives: Action theory and philosophy of mind (Vol. 4, pp. 53–79). Atascadero, CA: Ridgeview.

Block, N. (1995). On a confusion about a function of consciousness. Behavioral and Brain Sciences, 18, 227–287.

Burge, T. (1977). Belief de re. Journal of Philosophy, 74, 338–362.

Chalmers, D. J. (2004). The representational character of experience. In B. Leiter (Ed.), The future for philosophy (pp. 153–181). Oxford: Oxford University Press.
Chalmers, D. J. (2006). Perception and the fall from Eden. In T. Gendler & J. Hawthorne (Eds.), *Perceptual experience* (pp. 49–125). Oxford: Oxford University Press.

Delk, J. L., & Fillenbaum, S. (1965). Differences in perceived colour as a function of characteristic color. *The American Journal of Psychology, 78*, 290–293.

Durgin, F. H., Hajnal, A., Li, Z., Tonge, N., & Stigliani, A. (2010). Palm boards are not action measures: An alternative to the two-systems theory of geographical slant perception. *Acta Psychologica*, 134, 182–197.

Durgin, F. H., Klein, B., Spiegel, A., Strawser, C. J., & Williams, M. (2012). The social psychology of perception experiments: Hills, backpacks, glucose, and the problem of generalizability. *Journal of Experimental Psychology: Human Perception and Performance, 38*, 1582–1595.

Firestone, C., & Scholl, B. J. (2014). Top-Down effects where none should be found: The El Greco fallacy in perception research. *Psychological Science, 25*(1), 38–46.

Fodor, J. (1983). *Modularity of mind*. Cambridge, MA: MIT Press.

Friston, K. (2010). The free-energy principle: A unified brain theory? *Nature Reviews Neuroscience, 11*(2), 127–138.

Friston, K., & Stephan, K. E. (2007). Free-Energy and the brain. *Synthese, 159*(3), 417–458.

Hansen, T., Olkkonen, M., Walter, S., & Gegenfurtner, K. R. (2008). Colour appearance of familiar objects: Effects of object shape, texture and illumination changes. *Journal of Vision, 8*, 1–16.

Heck, R. (2000). Nonconceptual content and the ‘space of reasons’. *Philosophical Review, 109*(4), 483–523.

Macpherson, F. (2012). Cognitive penetration of colour experience: Rethinking the issue in light of an indirect mechanism. *Philosophy and Phenomenological Research, 84*(1), 24–62.

Marr, D. (1982). *Vision*. San Francisco, CA: W.H. Freeman.

Martin, M. G. F. (1992). Perception, concepts, and memory. *Philosophical Review, 101*, 745–763.

McDowell, J. (1994). *Mind and world*. Cambridge, MA: Harvard University Press.

Olkkonen, M., Hansen, T., & Gegenfurtner, K. R. (2006). Memory modulates color appearance. *Nature Neuroscience, 9*, 1367–1368.

Raftopoulos, A. (2009). The cognitive impenetrability of the content of early vision is a necessary and sufficient condition for purely nonconceptual content. *Philosophical Psychology*

Raftopoulos, A., & Müller, V. (2006). The phenomenal content of experience. *Mind & Language, 21*(2), 187–219.

Shea, N. (forthcoming). Distinguishing top-down from bottom-up effects. In S. Biggs, M. Matthen, & D. Stokes (Eds.), *Perception and its modalities*. Oxford: Oxford University Press.

Siegel, S. (2012). Cognitive penetrability and perceptual justification. *Noûs, 46*(2), 201–222.

Speaks, J. (2005). Is there a problem about nonconceptual content? *Philosophical Review, 114*(3), 359–398.

Stalnaker, R. (1998). What might nonconceptual content be? In E. Villanueva (Ed.), *Concepts* (pp. 339–352). Atascadero, CA: Ridgeview.

Toribio, J. (2008). State versus content: The unfair trial of perceptual nonconceptualism. *Erkenntnis, 69*(3), 351–361.
Tye, M. (1995). *Ten problems of consciousness*. Cambridge, MA: MIT Press.

Tye, M. (2000). *Consciousness, color, and content*. Cambridge, MA: MIT Press.

Tye, M. (2006). Nonconceptual content, richness, and fineness of grain. In T. Gendler & J. Hawthorne (Eds.), *Perceptual experience* (pp. 504–530). Oxford: Oxford University Press.

Witzel, C., Valkova, H., Hansen, T., & Gegenfurtner, K. (2011). Object knowledge modulates colour appearance. *i-Perception, 2*(1), 13–49.

Wright, C. (1998). Mind and world by John McDowell. *Philosophy and Phenomenological Research, 58*(2), 395–402.

Zeimbekis, J. (2013). Color and cognitive penetrability. *Philosophical Studies, 165*, 167–175.