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NONCONCEPTUAL CONTENT, CAUSAL THEORY, AND REALISM

ABSTRACT: In this paper the connections between the nonconceptual content of perceptual states and realism are considered. In particular, I investigate the argument for realism that uses the notion of nonconceptual content, specifically the version proposed by Raftopoulos in *Cognition and Perception*. To evaluate the argument two forms of realism are identified: (1) correlation realism (CR), according to which distinctions in perceptual content correlate with distinctions in the environment, and (2) ontological realism (OR), according to which perceptual content and perceived reality are both organized according to the same set of ontological categories. First, it is argued that the distinction between nonconceptual and conceptual content is irrelevant for the justification of CR. In particular, the notion of nonconceptual content is neither sufficient nor is it necessary for such justification. Second, it is stated that the version of the causal theory of perception that is used in the argument considered already assumes ontological realism. What is more, the weaker version of the causal theory, that does not presuppose OR, is too weak to justify ontological realism in combination with assumptions about nonconceptual content and the successfulness of perception.

1. INTRODUCTION

One classical debate in the philosophy of perception concerns the question of realism: whether the content of our perceptual states faithfully represents reality or is, rather, a kind of inner construction produced by mental activities. Recently, the realist position has gained support from contemporary discussions regarding the conceptual and nonconceptual nature of perceptual content. Intuitively, it is quite tempting to propose that: (1) if there is a nonconceptual stage of perceptual processing, and (2) the perceptual content produced during that stage is caused by external entities, then the perceptual system has a direct link to the environment (see e.g., Pylyshyn 2007). On such a basis it may be argued that the structure of the nonconceptual content of perceptual states, as independent from the subjective conceptual scheme, matches the structure of the perceived reality.

This paper has two main goals. First, to properly judge if the notion of nonconceptual content can be used to formulate a convincing argument for perceptual realism, a precise definition of perceptual realism is needed. In the paper I specify two versions of perceptual realism: weaker correlation realism and stronger ontological realism. As such, the discussion extends beyond the common, intuitive description of perceptual realism connected with the metaphor of “carving the world in the right places.”

Second, I consider whether correlation realism or ontological realism can be justified using the notion of nonconceptual content. I argue that the connection between nonconceptual content and realism is weaker than it seems. Specifically, I state that the justification of correlation realism is independent of the distinction between conceptual and nonconceptual content. What is more, I argue that ontological realism is not justified, but is in fact assumed by the popular formulation of the causal theory of perception — and without this assumption it cannot be justified using the notion of nonconceptual content.

In the concluding sections I consider other ideas, independent from the notion of nonconceptual content, which can either be used to justify perceptual realism in its ontological version or to reformulate the whole realism/constructivism debate. In particular, I sketch out a research program for investigating the ontology of perceptual content.

In discussing the connections between perceptual realism and non-

conceptual content I focus on the argument for realism proposed by Raftopoulos (2009), which is representative of a more general practice of connecting nonconceptual content and the causal approach to perception with realism. The argument by Raftopoulos is significant because it directly uses the notion of nonconceptual content to justify perceptual realism. What is more, Raftopoulos proposes a clear understanding of nonconceptual content that is closely connected to the way in which the perceptual system processes information.

2. NONCONCEPTUAL CONTENT AND THE PERCEPTUAL PROCESS

In his work on vision, Raftopoulos (e.g., 2006; 2008; 2009) persuasively argues that there exists a stage of visual information processing that is purely bottom-up, i.e., that is not under direct top-down influence from higher-level cognitive mechanisms. This stage is what he calls ‘perception’, which he distinguishes from ‘sensation’ — the initial phase that lacks any representational content, and which is connected with the activity of retinal receptors and cells in the V1 visual cortex — and ‘observation’, where top-down influences are common and, because of this, where visual information is interpreted according to a conceptual scheme.

Raftopoulos founds his proposition on psychological and neural models of visual perception. In particular, he presents data showing that top-down influences are delayed in time (e.g., Lamme 2003), meaning that there is a phase when visual information is processed in a solely bottom-up fashion.¹ He also refers to some influential conceptions according to which objects are individualized² due to grouping and segmentation processes during the initial, pre-attentive stage of visual processing (e.g., Vecera (2000)); and that they can preserve their identity through time by applying visual indices (Pylyshyn 2001) or by creating object-files (Kahneman et al. 1992).

According to (Raftopoulos 2009, p. 89), the output of perception is similar to the classical 2.5D sketch described by Marr (1982). The important thing about the content of perceptual output is that it presents objects as persisting individuals with basic spatiotemporal properties. However, representations of objects created by perception do not encode details about all their visual features, and they do not present ob-

jects as members of general categories (like dogs or tables). To obtain a more detailed representation, the top-down mechanisms, especially those connected with the categorization of objects and object-based attention, have to be introduced.

By distinguishing the bottom-up phase of visual processing, Raftopoulos is able to characterize nonconceptual content in a way that is more closely connected to the actual functioning of the visual system than other popular approaches referring to the fine-grained character of perceptual content (Tye 1995), perceptual representations of impossible states (Crane 1988), or animal and infant cognition (Peacocke 2001). On Raftopoulos’s approach, nonconceptual content can be defined in the following way:

NCC: Content of perceptual states is nonconceptual iff it is produced by a process that is not directly modulated by top-down mechanisms.

When a process is directly modulated by a top-down mechanism, it is conducted relatively to the resources used by that mechanism — the structure and content of a conceptual scheme possessed by a subject, his memories, expectations, beliefs, etc. On the contrary, a purely bottom-up process operates according to stable rules³ implemented in the structure of the perceptual system, which are independent of the perceiver’s conceptual framework. Further, in this paper, I understand the NCC to include the claim that there *are* perceptual states with nonconceptual content.

It is worth noting that Raftopoulos (2009, p. 47) distinguishes direct and indirect top-down influences. The indirect top-down influence, connected with the functioning of spatial attention, does not affect the process itself, but may determine which stimuli will be processed and also make the processing more efficient — for example by designating a visual location where stimuli are likely to appear. According to Raftopoulos’s conception, its presence does not constitute a threat to the nonconceptual status of content.

3. THE ARGUMENT FOR REALISM

Raftopoulos characterizes (2009, p. 327–328, 336) realism in intuitive terms, as the idea that perceptual content presents the world correctly,

that perceptual output presents things as they really are, or that perception “carves the world in the right places”. Analogously, constructivism may be characterized as the thesis according to which perceptual content does not present the structure of reality correctly, but is to some degree a reality-independent product of the mind.

The argument (Raftopoulos 2009, p. 342) for realism depends on three main elements: the existence of nonconceptual content of perceptual states, the causal theory of perception, and the successfulness of perception. Nonconceptual content was defined in the previous section (NCC). According to Raftopoulos (2009, p. 344), the causal theory of perception can be characterized in the following way:

CT: The perceptual system retrieves visual information about the environment by causal interactions with objects and their properties that constitute that environment.

The successfulness of perception is the simple idea that:

SP: In ordinary conditions, interactions with the environment guided by the content of perceptual states are successful.

According to CT, entities in the perceiver’s environment causally influence the visual system in a way that allows the perceptual mechanism to obtain information regarding the environment. After the initial ‘sensation’ stage, this information is perceptually processed in a bottom-up fashion. Such processing, in accordance with the definition of NCC, will produce perceptual states with nonconceptual content. Due to the bottom-up nature of perceptual mechanisms, the visual information gathered causally from objects cannot be modified and distorted by any conceptual influences. As we know from our ordinary experience, the actions we undertake when guided by the content of our perceptual states are usually successful — so SP is probably true.

If (1) our perceptual states have nonconceptual content, and (2) this content is constructed by virtue of causal links with the environment without any conceptual influences, and (3) this content allows us to successfully interact with the environment, then, it seems, realism is justified — perception does usually “carve the world in the right places”.

4. TWO FORMS OF REALISM

The intuitive formulation of realism, presented earlier, can be specified in two ways: as correlation realism and as ontological realism. Correlation realism is the thesis that:

*CR: (1) every distinction presented in a perceptual state corresponds to a distinction in the fragment of reality that is perceived; and
(2) distinctions are mapped monotonically: the order and differences among distinctions in perceptual content correspond to the order and differences among distinctions in the fragment of reality that is perceived.*

If CR is true, then every perceptual distinction — e.g. the edge of an object, a border between two regions of different color, etc. — is correlated with exactly one distinction in reality — e.g. a big change in matter density over a small area, or a difference in reflectance properties — and no two different perceptual distinctions are correlated with the same distinction in reality. The second condition (monotonicity) has been added to omit the possibility that in every part of physical reality there is some sort of distinction, so that even random arrangements of distinctions in perceptual content fulfill condition (1).

The opposite of CR can be called ‘correlation constructivism’. According to this view, either perceptual distinctions do not match any distinctions in perceived reality or they match them in some non-monotonic fashion.

Ontological realism is the idea that:

*OR: (1) Entities presented in perceptual content and entities constituting reality belong to the same ontological categories; and
(2) for every entity that is presented within the content of a perceptual state as belonging to an ontological category X , there is a corresponding entity within the perceived fragment of reality that belongs to the same ontological category (X).*

If OR is right, then the ontological categories that organize perceptual content are the same as those that organize reality. For example, if

our perceptual content presents objects possessing properties then reality also contains objects with properties. What is more (condition (2)), every entity presented in perceptual content as belonging to a given ontological category is matched with exactly one entity in reality that belongs to the same ontological category. In addition, no two different entities contained in the perceptual content can represent the same real entity. For example, according to OR, every object and property presented in perception matches exactly one real object and one real property, and different perceptual objects and properties represent different real objects and properties.

The opposition to ontological realism — ontological constructivism — is the claim that perceptual content and reality are organized according to different sets of ontological categories or that there is no proper — as described above — matching between perceptual and real entities.

Ontological realism entails correlation realism in the same way that correlation constructivism entails ontological constructivism. If perceptual content and perceived reality are organized according to the same ontological categories, and there is a mapping between perceptual and real entities, then perceptual distinctions are also correlated with real distinctions, since they designate entities in the visual field. However, as will become clear, ontological realism is not entailed by correlation realism.

5. NONCONCEPTUAL CONTENT AND CORRELATION REALISM

In this section, I investigate the relation between nonconceptual content and correlation realism. It seems that the combination of NCC, CT, and SP is able to justify correlation realism, and the metaphorical phrase “carving the world in the right places” may be interpreted as expressing CR.

The structure of this argument can be specified in the following way:

- 1) A visual system comes into contact with the environment by causal interactions with objects and properties in the world.
- 2) Due to the bottom-up nature of perceptual processing, perceptual states have nonconceptual content.

- 3) Actions based on the nonconceptual content of perceptual states are usually successful.

If 1)–3) are true, then 4) perceptual distinctions match real distinctions as described by correlation realism.

It is clear that NCC, CT, and SP do not constitute a deductive argument for correlation realism. Many, but quite bizarre, alternatives for correlation realism may be proposed. For example, it can be imagined that 1) and 2) are fulfilled, but that perceptual content does not match real distinctions; however, our actions based upon perceptual content are still accurate because they are immediately corrected by a non-perceptual mechanism.

The justification of CR based on NCC, CT, and SP rather takes the form of an inference to the best explanation. It seems that correlation realism is the most plausible explanation of how actions based on nonconceptual content, which is constructed from causally-gathered visual information, are successful. Similarly, as in the well-known argument for scientific realism (Putnam 1975), other explanations look too strange or miraculous.

Below, I weaken the connection between NCC and correlation realism by arguing that postulating nonconceptual content for perceptual states is neither necessary nor sufficient for the justification of CR.

To demonstrate that NCC is not necessary, an argument can be constructed in which CT and SP are combined with perceptual states possessing conceptual content. Let’s assume that there is no purely bottom-up stage of the perceptual process. Instead, visual information processing is always directly modulated by top-down mechanisms. Analogously, as in the definition NCC, such a process will produce perceptual states with conceptual content.

It seems that in such a situation correlation realism can still be justified. According to CT, visual information is causally transferred to the perceptual system. Then, perception processes that information, partially by using a conceptual framework connected to higher-order cognitive abilities. The output of that process, in accordance with SP, allows a subject to successfully interact with the environment. It seems that in such a case correlation realism is no less justified than in the original argument, which uses the notion of nonconceptual content. If perceptual states with conceptual content allow for successful interac-

tions, then distinctions presented in their content are likely to correspond to distinctions in the environment. It seems that the CR is also the best explanation in the case of conceptual content.

In fact, it looks like the successfulness of perception is sufficient for the justification of CR, which is a rather weak form of realism, and that the distinction between conceptual and nonconceptual content is contingent in relation to this justification. To make the existence of nonconceptual content a necessary condition for the justification of correlation realism, it has to be shown that conceptual content is not able to guarantee the successfulness of actions in ordinary situations. For example, it may be argued that the conceptual schemes used in producing conceptual content are too subjective or context-dependent. However, the existence of a common (at least for humans) set of basic concepts also seems possible, and that by using that set reliable conceptual content may be produced.

The above considerations suggest that the notion of nonconceptual content is not necessary for justifying correlation realism. The fact that it is also not sufficient can be shown by constructing an argument with NCC and CT, but without SP. As has been stated, according to CT there is a causal link that transfers visual information between objects and the perceptual system, and nonconceptual content is produced by bottom-up mechanisms, which are free of conceptual influences. However, without the assumption about the successfulness of perception, correlation realism does not seem to be more plausible than correlation constructivism.

The sufficiency of NCC in the justification of correlation realism would be guaranteed if SP were entailed by the existence of nonconceptual content. Obviously, the conceptual variant of correlation constructivism is excluded by NCC — there are no conceptual influences on the perceptual process. But there is still a space for a ‘causal’ (or ‘structural’) version of it. It may be the case that the stable rules, implemented in the perceptual system, that govern bottom-up processing, systematically distort visual information and create nonconceptual content that presents distinctions that do not correlate with any distinctions in the environment. Such a result additionally strengthens the thesis that what is really essential for justifying CR is the assumption about the successfulness of perception; which seems to be coherent with the

existence of nonconceptual content as well as with its nonexistence.

Of course, if the description and interpretation of the perceptual process offered by Raftopoulos is correct, then perceptual states do have nonconceptual content that is produced by mechanisms that do not systematically distort visual information. If this is correct, then the counterarguments presented above do not describe actual situations. However, even if our actions are actually successful when we rely on the nonconceptual content of perceptual states, this does not mean that NCC is a necessary or sufficient element of the justification of correlation realism.

6. CAUSAL THEORY AND ONTOLOGICAL REALISM

Above, I argued that the conjunction of NCC, CT, and SP justifies correlation realism, but that the thesis about the nonconceptual content of perceptual states does not play an important role in the argument. Now, I will consider whether NCC, CT, and SP are able to justify ontological realism. Additionally, CR may be added to the argument’s premises, as it seems that correlation realism is justified by the NCC–CT–SP combination.

The structure of this argument can be specified in the following way:

- 1) A visual system comes into the contact with the environment through causal interactions with objects and properties in the world.
- 2) Due to the bottom-up nature of perceptual processing, perceptual states have nonconceptual content.
- 3) Actions based on the nonconceptual content of perceptual states are usually successful.
- 4) Perceptual distinctions match real distinctions, as described by correlation realism.

If 1)–4) are true, then 5) the content of perceptual states and of reality are organized according to the same set of ontological categories, as described by ontological realism.

According to OR, perceptual content and reality are organized according to the same ontological categories. From our experience it is

obvious that perceptual content presents the world as constituted by objects that possess properties. Given that, the argument for OR should show that the reality that is in fact represented by perceptual content is itself also composed of objects with properties.

However, the way in which Raftopoulos specifies the causal connection between perceiving subject and the environment (2009, p. 334) suggests that the thesis about the ‘objects-with-properties’ structure of reality is not justified, but is in fact assumed by the argument for realism.

According to CT, visual information is provided by causal links between objects and properties in the world and the perceptual system. CT assumes that reality consists of objects with properties and that from this, together with knowledge about the content of our ordinary perceptual states, it can be immediately inferred that reality and perceptual content are organized according to the same ontological categories. This, together with the SP assumption, also justifies the second part of OR — if our actions based on perceptual content are successful, there should be a mapping from perceptual objects to real objects.

In order to justify ontological realism without assuming an essential part of it, the weaker version of CT should be introduced. It can be formulated in the following way:

WCT: The perceptual system retrieves visual information about the environment through causal interactions with entities that constitute the environment.

WTC still implies that there are some beings that provide visual information by causal interactions, but does not specify to what ontological categories they belong.

However, accepting WCT and combining it with the NCC and SP does not allow us to justify ontological realism. To demonstrate this, a simple counterargument may be formulated. Let’s assume that physical structure of reality does not consist of objects but is built up of continuous fields of energy and/or matter. In such a case, WCT may be satisfied: the perceptual system receives visual information from causal interactions with entities (continuous fields). This information may be processed in a bottom-up fashion, producing states with nonconceptual content. In addition, SP (as well as correlation realism) can be true in the above situation, since every perceptual distinction may match a real

distinction — e.g. what we perceive as borders of objects are correlated with rapid changes in the density of fields — and so a subject is able to successfully interact with the environment. Nevertheless, ontological realism would be false, since there are no actual objects in the perceived reality.

It may still be argued that even if WCT — together with NCC, SP and CR — does not entail ontological realism, ontological realism is still the best explanation of how WCT, NCC, SP and CR are jointly true, and in that sense their combination justifies OR. On the other hand, the counterargument describing the objectless field-ontology of physical reality suggests that there are alternative ways to explain the WCT–NCC–SP–CR conjunction. Such an objectless ontology may seem counterintuitive, however, since the categories of entities used in physical explanations are often different from those that are ordinarily present in perceptual content, and there is no generally accepted answer about the relation between basic physical elements and regular medium-sized objects. In addition, the possibility of the non-existence of objects has been widely discussed in analytic metaphysics (see e.g., van Inwagen 1990; Unger 1979).

It seems that the CT thesis already assumes ontological realism, whereas the weaker CTW, which omits that assumption, does not allow justifying OR on the basis of NCC, SP and CR. From this, the conclusion can be drawn that in order to justify ontological realism without committing a *petitio principii*, some additional premises have to be added or an independent argument should be presented that will justify the stronger (CT) version of the causal theory.

7. REALISM BEYOND NONCONCEPTUAL CONTENT

I have argued that the notion of nonconceptual content is not particularly useful in justifying ontological realism. Relying on this negative result, it may be asked whether there is a more promising approach to the question of perceptual, ontological realism. I believe that there are three positive propositions that are worth investigating further.

First, it may be postulated that the whole debate about perceptual realism and perceptual constructivism is based on a faulty notion of content, according to which elements of perceptual content constitute

a model of the external world. According to this approach, it may be stated that in fact there is no such thing as perceptual content, and the functioning of the cognitive system can be sufficiently explained by referring to causal interactions between an organism and the environment (e.g. Hutto 2006). Alternatively, a notion of content can be preserved, but it may be denied that it models entities in the environment in any way, for example by claiming that content concerns the fulfillment of some laws of interactions to which the neural system is tuned (e.g. O'Regan 2011).

The above approach resolves the realism/constructivism debate simply by showing that the whole problem rests on a mistake. However, there are also ways in which the realism/constructivism discussion can be considered without breaking the link between content and the environment. Within the frameworks of disjunctivism or direct realism it may be claimed that elements of perceptual content do not represent external entities, but rather that content is constituted by such entities. Obviously this allows proponents of such theories to very easily justify ontological realism, because here there is no difference between elements of content and entities in the environment. But this position faces well-known problems in explaining illusory and hallucinatory states.

Probably the most interesting approach to investigating the problem of perceptual realism is to preserve the notion of content understood as being composed of elements that represent entities in the environment, and try to justify ontological realism without invoking the notion of nonconceptual content. A clear formulation of ontological, perceptual realism opens the way for a research program that connects philosophical ontology with the philosophy of perception and empirical investigation. In such an approach, three elements are needed in order to justify ontological realism. First, an ontological theory of perceptual content is needed that can utilize, *inter alia*, mereological and topological notions (Smith 1998). Some ideas are already present in classical analytic (Russell 1956) and phenomenological (Husserl 2001) works, but these were not developed in connection with contemporary empirical investigations concerning perception. Second, an ontological theory of physical elements that interact with the visual system should be formulated. The last element is a model that explains the connection between causal influence from certain elements of the environment and

the presence of various elements of perceptual content. Investigations conducted as part of such a research program would reveal to what extent and under what conditions the elements presented in perceptual content match the ontological arrangement of entities in the environment.

8. CONCLUSION

I have considered the connections between the nonconceptual content of perceptual states and perceptual realism. In particular, I have investigated the argument for realism, in the version proposed by Raftopoulos, using the notion of nonconceptual content, the causal theory of perception, and the assumption about the successfulness of perception. In order to evaluate the argument, I distinguished two forms of realism: weaker correlation realism and stronger ontological realism. I have argued that (1) the distinction between nonconceptual and conceptual content is not relevant for the justification of correlation realism, and (2) the version of the causal theory that does not presuppose ontological realism is too weak to justify ontological realism in combination with assumptions about nonconceptual content and the successfulness of perception. Finally, I have sketched a program for ontological investigations concerning perpetual content that may reveal to what extent ontological realism is true.

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Notes

¹ See also Pylyshyn (1999) for review and discussion concerning the gap between cognition and perception.

² However, see Campbell & Martin (1997), Clark (2004), or Treisman (1999) for alternative philosophical and psychological approaches.

³ For examples of such rules see Kellman & Shipley (1991) (visual completion), Palmer & Rock (1994) (figure/ground discrimination).

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