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JOHN CAMPBELL: *Reference and Consciousness*
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THE TOPIC OF *Reference and consciousness* is the reference of perceptual demonstratives, i.e., reference made to currently perceived objects on the basis of current perception of them. Its author John Campbell claims that knowledge of the reference of a perceptual demonstrative consists in acquaintance with its object. His account has its roots in Bertrand Russell's theory of logically proper names.

The bulk of the book is devoted to explain acquaintance with a perceived object in terms of conscious attention. Campbell attempts to do so by integrating a traditional semantics based in epistemology with contemporary cognitive psychology. The remaining five chapters are largely independent of each other. In chapters 8 and 9, the theory of reference is extended to the cases of joint attention and memory demonstratives. The next chapter is devoted to Anti-Realism. In chapter 11, Campbell argues against views such as Quine's and Davidson's that deny that there is a direct point of contact between perceptual demonstratives and the world. In the last chapter, he argues that we have immediate knowledge of categorical, and not dispositional, properties and objects.

I will focus on the central theme of the book, i.e., the reference of perceptual demonstratives, and on how demonstrative reference is related to attention. The content of the latter chapters will not be discussed. I agree with Campbell that attention as a conscious phenomenon matter for reference. But I do not quite agree with his account of how it matters.

Let me first give a summary of Campbell's theory. On one of the first pages of his book, Campbell states that it is "attention as a phenomenon of consciousness that matters for knowledge of reference". Non-conceptual, conscious attention to the perceived object is necessary to understand the demonstrative at a conceptual level. Campbell contrasts conscious attention with attention as a lower-level, information-processing phenomenon, emphasising that they interact. By thinking of knowledge of reference as explained by conscious attention, Campbell hopes to reinstate the view that, *pace* Wittgenstein and Quine, knowledge of the reference of a term explains its pattern of use.

The general role of conscious attention is made clear by what Campbell calls the Classical view. According to it, knowledge of what it is for a proposition to be true is what causes, and justifies, the use of particular ways of verifying, and finding the implications of, that proposition. On this view, sense determines reference by giving knowledge of reference, thereby causing and justifying the particular methods of verification.

According to Campbell, the knowledge required to understand the reference of perceptual demonstratives is constituted by conscious, selective attention to perceived objects. This idea is motivated by the intuition that one must be conscious of the object to understand a sentence or thought that contains the demonstrative. Conscious attention makes it possible to single out the object by its sensory properties. Campbell holds that to refer to a perceived object, one must not only have it in one's visual field, but also visually discriminate it from its surroundings, "as figure from ground".

Knowledge of the reference of perceptual demonstratives is, according to Campbell, based in a primary experience of a location and a subsequent Gestalt organisation of the sensory information gained from the location. A property of the object is used to single it out visually. Conscious attention subsequently performs a verification of a proposition to the effect that the object has that property, and causes verbal reports.

Campbell submits that what he calls the Relational View of experience characterises the kind of acquaintance with objects that provide knowledge of reference. According to it, the qualitative character of the experience is constituted by the qualitative character of the scene perceived. Experience of an object is a simple relation holding between a subject and an object. The conscious state contains the object as a constituent together with the viewpoint from which they are observed. The phenomenal content of experience confronts the subject with the categorical properties of the object, which constitute the individual substance of the object.

Campbell claims that experience must be of the categorical properties of perceived objects, not, for instance, their dispositional or functional properties. The reason why, he seems to argue, is first, that only the perception of categorical properties can provide the subject with a grasp of the intrinsic nature of an object, and furthermore, that we need to know its nature to fully understand the concept of that object. Or else, we will not be able to understand the pattern of use of the concept, i.e., what the concept may imply in its various uses. Experience of the categorical ground

of an object would, it seems, explain that we can take different cognitive attitudes to the object. Campbell moreover argues that our (human) understanding of causation depends on grasping categorical properties, and that they therefore cannot be eliminated.

Campbell holds that the individuation of perceived objects occurs at a more primitive level of content than the demonstrative one. He makes use of Treisman's Feature Integration Theory to explain how the perceptual demonstratives refer.¹ First spatial attention picks out a location, and then the sensory information occurring at that place is bound together into a single object and organised in a Gestalt. The object is located by the motor system at the level of feature maps, while it is identified for the subject at the level of conscious attention. Then the information-processing sub-systems can lock onto the object and either act on it or verify propositions about it.

The two levels have to be connected, or the subject would not be in a position to know that different sensory properties belong to the same object. Campbell maintains that conscious attention explains how demonstrative, conceptual content can be grasped, because it causes a selection of relevant information to control the subject's verbal response. Conscious attention has a mediating position between conceptual thought and motoractivity, as well as between language use and underlying implicit cognitive processes.

Campbell calls the point of contact between the two levels the "binding parameter". This is the characteristic of the object that the visual system treats as distinctive of that object and uses in binding together features as features of that thing. The binding parameter is constitutive of the sense of demonstratives, which is non-descriptive.

The sense of a perceptual demonstrative is consequently characterised by the way in which the content of conscious attention systematically causally affects which information-processing procedures support verification and action. Campbell holds that language entry and exit rules will capture this relation. For perceptual demonstratives, the introduction rules are from the feature maps and the elimination rules to motor activity, or, I suppose, to verbal report.

¹ Treisman, A. (1988): 'Features and objects', The Fourteenth Bartlett Memorial Lecture. *Quarterly Journal of Experimental Psychology* 40A:201-37; Treisman, A. and Gelade, G. (1980): 'A feature integration theory of attention', *Cognitive Psychology* 14:107-41.

In spite of its comparatively short length, the book is dense, packed with information, and contains an abundance of interesting and inspired ideas. It is rich in details, at times to the extent that it becomes difficult to discern the general line of thought. The theory as such is complex and intricate, partly because of the author's ambition to give an account based in both philosophy and cognitive science.

The many arguments are alternately philosophical and empirical. Some of the hypotheses that are put forward in the beginning of the book receive a more extensive treatment in separate chapters towards the end. Maybe it would have been easier to understand these hypotheses and their importance for the main thesis had the material from the latter chapters been integrated into the first, continuous part of the text. Notwithstanding, the persistent reader will be rewarded for his or her patience.

I find the topic of the book well suited for an interdisciplinary account of Campbell's sort. However, such a method requires special care from its user in order to avoid the many pitfalls. One common mistake among those who take an interdisciplinary stance is to attempt to establish a philosophical hypothesis by reference to empirical data. Another common mistake is to let philosophical requirements, and not scientific results, guide the choice of the empirical theory that is used to illustrate or support the philosophical thesis.

Occasionally, Campbell is a little careless in his use of empirical research to support and amplify his own ideas. That does not make his theory less interesting or even less plausible from a strictly philosophical point of view. But it does not, for instance, seem altogether wise to rely to such an extent as Campbell does on Treisman's theory. Could it not be that there are other theories than Treisman's which would be, perhaps not more suitable for Campbell's own theory, but equally, or even more, correct seen from a scientific point of view? This issue is never discussed. The reader with a background in philosophy only will be left in the hands of the author, without a hint as to whether there are any competing theories in the field. Campbell's silence is all the more surprising, since feature integration theories recently have received quite a lot of criticism.

Campbell contends, for instance, that location is a primary selection cue for an object, which is subsequently singled out by a feature. But for one thing, single features apparently capture attention only if the object that the singleton belongs to is anticipated or expected by the subject, as in top-down search. Moreover, objects cannot be initially discriminated

by mere location, because the identification of location relies on a previous segmentation of space. The primary objects of attention will not be locations *per se*, but consist in segmented regions, which form unities also when in motion. This means that objects (as regions or shapes) are fundamental.²

It should be noted that the word “object” as it is used in this article, as well as in Campbell’s book, is ambiguous. So-called objects of attention are not identical to the experienced objects to which Campbell initially refers, and which normally are considered to be the referents of perceptual demonstratives. There is not a one-one correspondence between the objects of attention and three-dimensional objects as we experience them on a phenomenological level. Objects of attention are clusters of features at a location in space. Which element will be relevant for identification will depend on the task at hand. For instance, in the beginning of the attention process objects of attention correspond to local structures. At the stage of conscious attention, they correspond to invariant, three-dimensional objects. When describing attention, we refer to the objects of attention at different stages of the attention process.

At some points Campbell seems to confuse first, the processes that occur on a subpersonal level with such that occur on a personal level, and second, different kinds of processes located on a personal level, viz., the ones being available for, or controlled by, the organism as a whole with those of which the organism is consciously aware, being consciously accessible for the organism.

One example is when he claims that the information on the computational level that subsequently will constitute the sense of the demonstrative is selected by conscious attention. But the selection of information in vision is predominantly carried out by saccades or attention shifts and evaluations on the computational level itself, and not on a phenomenological level. What information later goes into the sense of the perceptual demonstrative may very well be a function of conscious attention, but at a later stage of the attention process. The link between reference and the computational level of attention cannot be as direct as it appears on Campbell’s account. In my opinion, making it appear direct does not fur-

² Driver, J. and Baylis, G.C. (1998): ‘Attention and visual object segmentation’, in R. Parasuraman (ed.), *The Attentive Brain*, Cambridge, Mass.: MIT Press: pp.299–325; Scholl, B.J. (2001): ‘Objects and attention: The state of the art’, *Cognition* 80: 1–46.

ther our understanding of how reference is grounded in perception.

Another example of the same kind is when Campbell mentions an intentional, second use of feature maps in verifying propositions about perceived objects. I will try to make the difference between the levels clear by giving a brief description of attention in line with current research in cognitive psychology and neurophysiology.³

The attention process is complex and makes use of different kinds of processing and analyses, working against different memory systems. It can be described as a system that selects sensory information for action at different levels of control.⁴ Selection can be conceived of as both an inhibition and an enhancement of stimuli. There is a continuous selection of data over time, and the remaining data are subject to analyses of various kind and depth. Attention may be bottom-up and exogenous, i.e., based in attention attraction that is triggered by external stimuli, or top-down and endogenous, i.e., driven by some internal need or desire of the subject.

Top-down processing is not necessarily conscious, but often the opposite. It can, for instance, consist in priming, regulated by the subsystems of the subject.⁵ An example is the task of crossing the floor of one's bedroom. Here a priming mechanism will see to it that attention is enhanced to stimuli that concern the task (say, the position of items on the floor and of the corner of the bed), while it is inhibited to stimuli that are irrelevant (the colour of the sheets and the size and location of the cushions on the bed). In this case, it may well be that the only task of which the subject is consciously aware is to answer the phone that is ringing in the hallway.

Attention occurs throughout the vision process, from the initial sensory input to the early vision system, over the treatment of clusters of features in the dorsal and ventral paths, to the final output of three-dimensional percepts. A simple task such as keeping track of an object of attention

³ For some references, see e.g. Brinck, I. (2001): 'Attention and the evolution of intentional communication', *Pragmatics & Cognition* 9(2):255–272; Brinck, I. (2003): 'The objects of attention: Causes and targets. Comment on Hurford', *Behavioral and Brain Sciences* 26(5).

⁴ Allport, A. (1990): 'Visual attention', in M. Posner (ed.), *Foundations of Cognitive Science*, Cambridge, MA: MIT Press, pp. 631–682; Balkenius, C. (2000): 'Attention, habituation and conditioning: Toward a computational model', *Cognitive Science Quarterly* 1(2):171–204; Balkenius, C. and Hulth, N. (1999): 'Attention as selection-for-action: A scheme for active perception', *Proceedings of EUROBOT'99*, ETH, Zürich.

⁵ Balkenius, C. and Hulth, N. (1999); Johnson, W.A. and Dark, V.J. (1986): 'Selective attention', *Annual Review of Psychology* 37:43–75.

can occur quite early during the process.⁶ Percepts are available for the organism as a whole, on a personal level, and reach conscious awareness if kept in short-term memory long enough. At an even more advanced stage, percepts may be under voluntary control and in a rational way be sensitive to the subject's goals and beliefs.⁷

In many cases, it is more appropriate to refer to processing at the personal and sub-personal levels than to talk about conscious and non-conscious attention. Attention is at bottom not a semantic, rational process, and a state of attention is not doxastic, nor propositional. Attention mainly performs its function at the sub-personal level, although the end products of the attention process may surface at a personal level. These products are individual, and have been constructed subject to biological, ecological, and individual (both innate and learned) constraints. All this means that the final output of the vision system does not compare very well with the linguistic meaning associated with demonstratives.

It is possible that Campbell intends something else by "conscious attention" than is intended in the account above, where conscious attention is to percepts. I get the impression that throughout the book, a philosopher's intuition of what attention may be competes with the empirical approach that is prominent in most parts of the book. In the end, it seems that *Reference and Consciousness* could have been a more accomplished book, had its author relied less on empirical research.

It is hard to contest Campbell's central claim that conscious attention to the perceived object is necessary to understand perceptual demonstratives. His account of the way in which attention contributes to this understanding is less obvious. I find the role that Campbell attributes to attention in relation to cognition and particularly the use of linguistic demonstratives inadequate. The part of Campbell's theory that relies on research in the cognitive sciences appears to be not so much about epistemology and the meaning and reference of perceptual demonstratives, as about the psychological processes behind language use and the cognitive

⁶ Currently, the traditional view of the attention as consisting of first preattention, and then focal attention is becoming less popular. The reason is that sensory information seems to be processed in a globally similar manner as soon as it enters sensory memory (allowing for the selection and tracking of an object), which means that there is not much point in talking about preattention from a computational point of view.

⁷ Weiskrantz, L. (1997): *Consciousness Lost and Found*, Oxford: Oxford University Press.

capacities necessary for it. But epistemology and semantics cannot be reduced to psychology in this way.

For one thing, linguistic meaning is intersubjective and public, seen both from a semantic and a pragmatic perspective (at least in the sense that meaning in principle is equally accessible and mutually manifest to all competent language-users, by interpretation, recovery from the context, or similar means). It may be argued that perceptual demonstratives constitute a special case, because their meaning is completed in the context of utterance. But demonstratives nevertheless have linguistic properties, which are available to and shared between the language users. As types, demonstratives have a certain function taken by themselves as well as in relation to other words. That means that their reference is not determined merely by the tokens' standing in a simple and direct relation to external objects, but as well by the roles these expressions play within language as types. The system that the types form together is sometimes called the lexical-semantic network. Thus token reference does not occur independently, but only as part of a symbol system, or a language.⁸ This general aspect of language is neglected in Campbell's account.

Moreover, there is a fundamental distinction between the individual's perceptual recognitional capacities, with a basis in human (psychophysical) constitution and her personal history, and those recognitional capacities that are anchored in (social) linguistic practise. Perceptual and linguistic discrimination impose different categories on information.

Linguistic discrimination makes use of linguistic concepts linked to natural languages. These concepts are interrelated semantically. They are as well inferentially related by operations that rely on stable categories. Linguistic discrimination relates concepts within a framework that determines how existing concepts should be applied when speakers stand before new information, how the concepts might be extended, and which new concepts may be introduced while keeping the conceptual network coherent. This makes it possible for speakers to agree on how to interpret new data.

Perceptual concepts, on the other hand, have their basis in the innate properties of individuals, and develop when the individual interacts with

⁸ See e.g. Bühler, K. (1934/1990): *Theory of Language. The Representational Function of Language*, Amsterdam: John Benjamins.

her environment. Small infants use spatio-temporal and not feature-based information to identify objects, while around one year they start using both sorts.⁹ The perceptual concepts that the children then develop are causally related to the entities they represent, and characterise these entities by functional or perceptually accessible surface properties.¹⁰ Perceptual discrimination is context-sensitive and tuned to the subject. The way in which the speaker herself perceptually conceives of the stimuli is not inherently or constitutively connected to the categories that belong to linguistic discrimination, although linguistic concepts, of course, are grounded in perceptual ones.

Joint attention makes it possible for speaker and hearer to agree on a common, conceptual categorisation of an object.¹¹ It sustains the move from individual perceptual discrimination to shared linguistic discrimination, thereby identifying those objects in common space that answer to the speaker's utterances. It is true that attention-focusing as well as the capacity to engage in joint attention is crucial for language development. But there is more to language and communication than attention. As I see it, the psychological processes behind language should be distinguished from the linguistic ones.

The question is what an account of acquaintance in terms of conscious attention can teach us about the reference of perceptual demonstratives. According to the Russellian theory, acquaintance results in intuitive knowledge. By acquaintance, one has conceptually unmediated and most probably unanalysable knowledge of given objects in the external world. Acquaintance gives basic, infallible, foundational knowledge.

Attention, on the other hand, is not an epistemological relation (not even conscious attention is so), and the objects of attention are not given. For instance, they can without contradiction be both causes that attract attention and products of focal attention, since the information that enters

⁹ Xu, F. and Carey, S. (1996): 'Infants' metaphysics; the case of numerical identity', *Cognitive Psychology* 30:111–153.

¹⁰ Samuelson, L. and Smith, L.B. (1999): 'Early noun vocabularies: Do ontology, category structure, and syntax correspond?' *Cognition* 71:1–33; Samuelson, L. and Smith, L.B. (2000): 'Attention to rigid and deformable shape in naming and non-naming tasks', *Child Development* 71:1555–1570.

¹¹ Brinck, I. (2004): 'Joint attention, triangulation and radical interpretation: a problem and its solution' *Dialectica* 58(2): 179–205.

into the vision system changes its character throughout the attention process.¹² It is an arbitrary decision we make, when we at some specific moment during the attention process decide to call the currently processed information the object of attention.

Seen from a purely cognitive point of view, Campbell's understanding of the notion of attention seems somewhat unorthodox. The ambiguity that adheres to the concept of attention also affects his claim that we consciously attend to and grasp categorical objects and properties. This claim is reasonable given that one's line of thought takes its starting-point in a Russellian theory of acquaintance and attention. But it does not really agree with a scientific understanding of attention. At this point, the gap between Campbell's philosophical outlook and the empirical, cognitive view becomes blatant. In spite of his efforts, Campbell does not succeed in uniting the two perspectives.

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