

Experimental assessment of the causal theory of perception

Commentary on Roberts et al. (2016)

Eugen Fischer (UEA)

In this very useful addition to a nascent body of work in the experimental philosophy of perception, Roberts and colleagues make a start on the experimental assessment of causal theories of perception in the wake of Grice (1961). In their classical version, these quite influential theories posit that when a subject sees an object, this object causally affects the subject – as a matter of conceptually grounded necessary truth. This claim is typically defended by reference to intuitions about possible ‘*deviant cases*’ in which the relevant causal or counterfactual link between the subject and a present object O is broken, but an experience as of seeing O is produced in the subject, in some deviant way. Roberts and colleagues experimentally assess whether ordinary speakers actually share theorists’ intuitions – as they should, when the theory is advanced as spelling out an aspect of our everyday concept of visual perception. By providing first empirical evidence uncongenial to the theory, the study compellingly shows further research is required. It also brings into relief some methodological challenges faced by relevant research.

In the study, participants were presented with descriptions of deviant cases in a randomised order. Two critical items involved cases where visual access to O was physically blocked (by a virtual reality headset and a mirror, respectively); two others involved ‘no-blocker’ cases where experiences as of O were induced through brain stimulation or drugs, with O in plain view (but arguably devoid of causal effect on the subject’s experience). After answering comprehension questions, participants rated their agreement with the statement that the protagonist sees object O. While participants quite consistently disagreed with this statement in the blocker cases, responses to no-blocker cases showed a bi-modal distribution, with strong disagreement (1/10) being the most frequent response, and strong agreement (10/10) the second most frequent. Roberts and colleagues infer that participants treat unblocked visual access, but not a causal link, as necessary condition for *seeing*.

The observed striking disagreements between participants give rise to the question whether participants interpret vignettes and target statements in the same way. Whenever we read a text, we spontaneously fill in detail, through default pragmatic inferences (Levinson, 2000), including stereotypical inferences (Ferretti et al, 2001; Fischer & Engelhardt, 2016). Subsequent classification judgments may then be based on matching with stereotypes (Tversky & Kahneman, 1982; cp. Rosch, 1978), and further enhance the reader’s situation model. As a result, disagreements in critical case judgments may be due to the fact that participants enrich the sketched scenario in different ways.

Take this ‘no-blocker’ case:

‘You have taken a drug that effects your brain so that it looks as if there is a snake in front of you. As it happens, there really is a snake in front of you that looks exactly that way.’ [p.9]

Inferences with the Maxim of Manner (or the M-heuristic) from the marked ‘it looks as if’ support the conclusion that (1) there is no snake in front of you, so (2) you must be having a hallucination. (A leading comprehension question [p.34] may reinforce the second conclusion, in the present case.) The first conclusion is cancelled by the sequel. The ‘as it happens’ renders

the second conclusion consistent with this cancellation. On the other hand, the situation described – in this and the other ‘no-blocker’ case – does not match stereotypical cases of hallucination, where people ‘see’ something when nothing of the sort is around to be seen. Inference with the representativeness (Tversky & Kahneman, 1982) or similarity heuristic (Read & Grushka-Cockayne, 2011) may lead to the judgment that the case is probably not one of hallucination.

Participants’ agreement ratings will then depend upon whether they conclude that this is a non-standard case of hallucination, or no hallucination. In the former case, participants will typically disagree with the target statement ‘You see the actual snake’ (but see below). In the latter case (no hallucination), elementary reasoning suggests that the drug must be modifying your perception of the snake actually in front of you, rather than having you ‘see’ something else, and participants will agree that ‘you see the actual snake’. If this explanation is correct, their agreement is based on a conceptualisation of the case as involving a modified but unbroken causal link between the critical object O and the subject of perception, and does not support the conclusion that competent speakers fail to treat a causal link between them as necessary condition of *seeing*.

Also the target statement is open to different interpretations. Most words are malleable in a way that endows them with different senses, adapted to speak about different recurrent types of situation. ‘See’ is more polysemous than most (with *WordNet 3.1* recognising no fewer than twenty-four schema-based senses, while generic metaphor-generating operations spawn further uses). The verb can be applied to cases of hallucination and allows us to say, e.g., that ‘Macbeth sees a dagger’ – in the sense that ‘Macbeth has an experience like that of seeing a dagger’ (Ayer 1956, 90). If Macbeth has an experience exactly like that of seeing a physical dagger (rather than like that of seeing an oddly translucent one), he can therefore be said to ‘see a physical dagger’ (Fischer & Engelhardt, 2017). When resorting to this phenomenal use, even participants who judge the snake-case to be one of hallucination can truly judge that ‘you see the actual snake’. If so, their agreement with this statement would not be evidence of failure to impose a causal condition on ‘seeing’, in its – different – perceptual sense.

As they stand, present results therefore do not seem to licence the conclusion that competent speakers fail to regard a causal link as necessary for visual perception. To show this, we would need to exclude the alternative explanations discussed. As Roberts and colleagues rightly note, ‘how people understand the statements [and vignettes] is an empirical matter that requires further investigation’ [p.21]. Follow-up studies should incorporate norming work to identify and avoid unwanted pragmatic inferences, including interfering inferences from stereotypes associated with expressions other than those of interest. Debriefing questions could be used to assess participants’ understanding in the main study. (Is this a case of hallucination or illusion or neither? How [as analogous to which of the following statements] do you interpret the final sentence? Etc.)

Such studies might establish that causal efficacy is not regarded as necessary for seeing, while something else is. But perhaps the entire search for necessary conditions imposed on ‘seeing’ is misguided. Verbs are associated with rich, internally structured stereotypes, viz., situation schemas, which store information about typical (but not necessarily necessary) features of actions or events, agents performing them, and ‘patients’ acted on (Ferretti et al, 2001). ‘S sees X’ is associated with a particularly rich schema that includes, e.g., agent-features *S uses her eyes, S looks at X*, and *S knows what X is*, and patient-features like *X is in front of S*

and *X is in the vicinity of S* (Fischer & Engelhardt, 2017). If spontaneous assessments of whether a case is one of seeing are based on matching with the relevant stereotype (situation schema), then it is perfectly possible that any one stereotypically associated feature may be absent, and yet the predicate judged to apply, and to apply in its dominant perceptual sense, in virtue of the near-complete match with the rich stereotype. In the absence of available normative rules, this judgment then need not be modified even in more effortful reflection.

We can readily come up with actual (not merely possible) situations in which even apparently fundamental component features of this schema are absent, and we still countenance the use of the verb and classify it as use of the visual sense. E.g., we say we ‘see’ the people we are Skyping with, who are separated from us by several walls and a thousand miles, and are clearly not ‘around to be seen’. But despite the absence of the stereotypical patient feature *X is in the vicinity of S* we presumably recognise this use as one of the dominant visual sense. Since this case also flouts the ‘no-blocker’ condition proposed by Roberts and colleagues, also the absence of a physical block between agent and patient seems to be treated as a typical, rather than a necessary, feature of visual perception.

Their counter-suggestion, in Fn.7, is that ‘whether this is true depends on what the correct way of understanding video-calls is’ and that, possibly, ‘we see through the video call to the person to whom we are speaking, directly’, like seeing her through a ‘pane of glass’. However, whether undergraduate participants impose a ‘no-blocker’ condition on *seeing* does not depend on the ‘correct’ way of understanding video-calls, but upon participants’ actual understanding. An informal survey suggests undergraduates overwhelmingly accept saying that ‘you see the person you are Skyping with’, while most do think that the direct line of sight is then blocked by physical objects. (In the study of Roberts and colleagues, responses to the ‘blocker’ cases may therefore have been influenced more strongly by the fact that both case descriptions suggest you see a *different* object than by the fact that headset and mirror block your line of sight.)

Finally, reflection on artificial replacements for eyes and our talk about such replacements suggests that even ‘People use their eyes when they see things (in the visual sense)’, the perhaps strongest candidate for a necessary truth about visual perception, can only be maintained as a necessary truth in case we define ‘eyes’ as whatever organs or instruments are used for seeing – and is then necessarily true in virtue of enforcing that new definition, rather than in virtue of any feature or aspect of the conceptual structure associated with the verb ‘to see’. While these suggestions remain largely speculative for now, it is a live possibility that ‘seeing’ is associated with a conceptual structure that fails to support necessary conceptual truths about visual perception. Seeing things might be like playing games.

References

- Ayer, A.J. (1956). *The Problem of Knowledge*. London: Penguin.
- Ferretti, T., McRae, K., & Hatherell, A. (2001). Integrating verbs, situation schemas, and thematic role concepts. *Journal of Memory and Language*, 44, 516-547.
- Fischer, E. & Engelhardt, P.E. (2016). Intuitions' Linguistic Sources: Stereotypes, Intuitions and Illusions. *Mind and Language*, 31, 67–103.
- Fischer, E. & Engelhardt, P.E. (2017). Stereotypical Inferences: Philosophical Relevance and Psycholinguistic Toolkit. *Ratio*. (dx.doi.org/10.1111/rati.12174)

- Grice, H.P. (1961). The Causal Theory of Perception. *Proceedings of the Aristotelian Society*, Suppl. Vol. 35, 121–152.
- Levinson, S.C. (2000). *Presumptive Meanings. The Theory of Generalized Conversational Implicature*, Cambridge, Mass.: MIT Press.
- Read, D. & Grushka-Cockayne, Y. (2011). The Similarity Heuristic. *Journal of Behavioural Decision Making*, 24, 23-47
- Roberts, P., Allen, K., & Schmidtke, K. (2016). Folk Intuitions about the Causal Theory of Perception. *Ergo: An Open Access Journal of Philosophy*, 3, 729-749
- Rosch, E. (1978). Principles of Categorization. In E. Rosch & B. B. Lloyd (eds.), *Cognition and Categorization*. Hillsdale, NJ: Erlbaum.
- Tversky, A., & Kahneman, D. (1982). Judgments of and by Representativeness. In D. Kahneman, P. Slovic, & A. Tversky (eds.), *Judgment under Uncertainty: Heuristics and Biases*. New York: Cambridge University Press