Visual Agnosia and Higher-Order Thought Theory

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A Central Question: What makes a mental state a conscious mental state? -- That is, how do we distinguish between unconscious (or non-conscious) representational states and conscious representational states?
Higher-Order Representationalism (HOR)

In general, the idea is that what makes a mental state conscious is that it is the object of some kind of higher-order representation (HOR). A mental state M becomes conscious when there is a HOR of M. A HOR is a “meta-psychological” state, i.e. a mental state directed at another mental state. So, for example, my desire to do a good powerpoint presentation becomes conscious when I am (non-inferentially) “aware” of the desire. Intuitively, it seems that conscious states, as opposed to unconscious ones, are mental states that I am “aware of” in some sense.
Higher-Order Perception (HOP) vs. Higher-Order Thought (HOT) Theory

There are various kinds of HO theory with the most common division between higher-order thought (HOT) theories and higher-order perception (HOP) theories. HOT theorists, such as David Rosenthal, think it is better to understand the HOR as a thought of some kind. HOTs are treated as cognitive states involving some kind of conceptual component. HOP theorists, such as William Lycan, urge that the HOR is a perceptual or experiential state of some kind which does not require the kind of conceptual content invoked by HOT theorists.
David M. Rosenthal
Two Figures (HOT Theory)

First-Order (= Outer-Directed) Conscious States

- Unconscious HOT
  - World-Directed Conscious Mental State

Introspection

- Unconscious HOT
  - Conscious HOT
    - Mental State
Keep in mind: When a conscious mental state is a first-order world-directed state the higher-order thought (HOT) is *not* itself conscious; otherwise, circularity and an infinite regress would follow. Moreover, when the HOT is itself conscious, there is a yet higher-order (or third-order) thought directed at the second-order state. In this case, we have *introspection* which involves a conscious HOT directed at an inner mental state. When one introspects, one's attention is directed back into one's mind. For example, what makes my desire to do a good presentation a conscious *first-order* desire is that there is a (nonconscious) HOT directed at the desire. In such a case, my conscious focus is directed at the my presentation and so I am not consciously aware of having the HOT from the first-person point of view. When I introspect that desire, however, I then have a *conscious* HOT (accompanied by a yet higher, third-order, HOT) directed at the desire itself.
A slight modification

My own view is that, when one has a first-order conscious state, the HOT is better viewed as *intrinsic* to the overall conscious state, so that we have a complex conscious state with parts. Conscious mental states are then best understood as global brain states which are combinations of passively received perceptual input and presupposed higher-order conceptual activity directed at that input. Concepts in the meta-psychological thoughts are thus presupposed in having first-order conscious states.
VISUAL AGNOSIA

Apperceptive Agnosia – Cases where “recognition of an object fails because of an impairment in visual perception…” (Farah 2004, p. 4)

Associative Agnosia – Cases “in which perception seems adequate to allow recognition, and yet recognition cannot take place.” (ibid.) It is a “normal percept stripped of its meaning.” (Teuber 1968)
More on Associative Visual Agnosia

- Difficulty on naming tasks and grouping objects together.
- Normal recognition of objects through modalities other than vision, e.g. by touching the object.
- Intact basic visual perception, e.g. patients can copy objects or drawings that they cannot recognize.
- Patients will often see the details or parts of an object, but not the “whole” of an object at a glance.
A Problem for HOT Theory

• It thus seems possible to have a conscious experience of an object (albeit, an abnormal experience) in the absence of higher-order conceptualization of the incoming visual information.

• There is a first-order perception of an object without the accompanying concept of that object. Thus, its “meaning” is gone and the object is not recognized.
HOT theory and associative agnosia: A reply

• It should first be noted that, if HOT theory is true, there must be some HOT for there to be a conscious state at all. So a HOT theorist can still hold that some other HOT is present in such abnormal cases, which reflects the way that the patient is experiencing the object (e.g. a whistle or paintbrush). For example, if a patient experiences object O (mistakenly) as some other object O’, then the HOT would have the O’ concept in it. If they experience object O only by certain parts or fragments, then those concepts will be in the relevant HOT. Thus, no problem so far. There is no reason to suppose that these HOTs are entirely absent in such cases.
• It is also important to recognize that associative agnosics still do have the relevant correct concept because the evidence shows that patients can apply it to other modalities (e.g. touch, hearing). For example, identifying a whistle by sound but not by sight. The problem is simply that, in cases of vision, the mechanism by which the appropriate concept is triggered is clearly defective. So while one might be said to be having a conscious visual perception of a whistle in some sense, the patient is not experiencing the object as a whistle.
It is helpful to view this in light of another objection to HO theory:

*The problem of misrepresentation:* An important objection to HO approaches is the question of just how such theories can explain cases where the HO state might misrepresent the lower-order (LO) mental state (Levine 2001). If we are dealing with a representational relation between two states, it seems possible for misrepresentation or malfunction to occur. If it does, then what explanation can be offered by the HO theorist? If my LO state registers a red percept and my HO state registers a thought about something green due, say, to some neural misfiring, then what happens? It seems that problems loom for any answer from a HO theorist and the cause of the problem has to do with the very nature of the HO theorist’s belief that there is a representational relation between the LO and HO states. For example, if the HO theorist takes the option that the resulting conscious experience is reddish, then it seems that the HO state plays no role in determining the qualitative character of the experience.
This is an objection that must be taken seriously and it forces HO theorists to be clearer about just how to view the relationship between the LO and HO states. One possible reply to this objection is to construe the LO and HO as part of the same integrated global state, so that misrepresentation arguably cannot occur. That is, a coherent and accurate conscious state only occurs when the LO and HO concepts match.
Associative Agnosia and Misrepresentation

The visual agnosic consciously perceives things, but cannot recognize what they are. They often mistake one object for another; for example, even mistaking one’s wife for a hat (Sacks, 1987). This differs from Levine’s case in that we are referring to the perception of objects as opposed to color perception. Visual agnosics are also not blind and do not have damage to the relevant areas of the visual cortex (contrast this with blindsight). However, a HOT theorist might view this as an unusual case where the typical HOT does not “match up” with the first-order visual input. Thus, it seems reasonable to view associative agnosia as a case where the “normal” concept in the HOT does not accompany the input received through the visual modality. So, as was mentioned earlier, associative agnosia would be a case where the LO state registers a percept of an object O, but the HO state (mistakenly) associates a concept of O’ with LO. Bare visual perception remains but is confused and loses meaning due to the lack of a matching concept, resulting in a different and rather confusing phenomenological experience.
Integrative Agnosia

- From Riddoch and Humphreys (1987)
- A common and more specific kind of associative agnosia
- In light of the misrepresentation issue, perhaps we can also sometimes understand associative agnosia more specifically as a problem of the “impaired integration of local shape parts into higher-order shapes.” (Farah 2004, p. 78)
- Agnosics often mistakenly guess at the identity of an object (e.g. calling a baby carriage a “bicycle”) on the basis of a single feature (e.g. wheels)
Integrative Agnosia (cont.)

- This has suggested to many that there is a “hierarchical system of shape representation, whose lower-level part representations are relatively intact but whose higher-level integration of the parts is damaged…” (Farah 2004, p. 78)

- Relative to HOT theory, this also suggests that it is best to hold that it takes the integration of both the LO state and the HOT to produce a coherent and accurate visual experience of an object. Otherwise, a loss of “global” or “gestalt” perception occurs. But this is not a problem for HOT theory as such; if anything, HOT theory can neatly explain what has gone wrong.
A similarity with prosopagnosia?

• Prosopagnosia is “the inability to recognize faces despite intact intellectual functioning and even apparently intact visual recognition of most other stimuli.” (Farah 2004, p. 92)

• Prosopagnosics “often speak of seeing the parts [of a face] individually and losing the whole or gestalt.” (Farah 2004, p. 94)
A problem with binding?

• We might, then, view the overall problem here as a kind of breakdown in the unity of consciousness; that is, in terms of a lack of the “binding” of features of objects into perceptual wholes.

• Many attempts to understand the visual system or visual processing (in the brain) in terms of binding make use of levels of representation and integration. The suggestion here is that we can also understand the visual object recognition process in terms of the proper integration of a LO state and an appropriate HOT (including the relevant concepts, which supply the “meaning”).
Conclusion

Associative agnosia can actually be neatly explained by HOT theory, rather than being a serious difficulty for the theory. Such cases reinforce the explanatory power of HOT theory in terms of the importance of matching HO concepts to LO input. These cases also show the advantage of understanding normal visual perception as genuine *integrations* of LO and HO states.
References


THANK YOU!