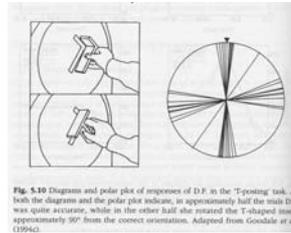


Visual Cognition & Visual Awareness V: *Dissociations of Vision & Action – Morals*

1. Pathological Evidence: The Case of DF



DF is a patient who has suffered brain damage to visual areas through carbon monoxide poisoning.

DF suffers from visual form agnosia: objects appear to be a blur and she cannot discern the orientation or shape of objects; or recognise the kind of thing an item is.

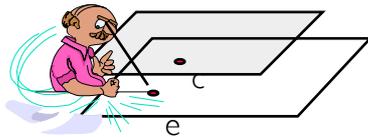
She can succeed in 'posting a letter'.

She does not succeed in manipulating a mannequin into the orientation for posting.

She does not succeed if there is a delay between prompt and appropriate action.

2. Evidence of Dissociation in Normals

We are subject to the Titchener illusion in visual awareness, but apparently not in visuo-motor coordination, when prehensile grip is measured.



Visuo-motor coordination can compensate for sudden movement of target without agent's awareness of the abnormality.

3. Summary of Hypothesis and Evidence

1. Two anatomical streams distinguished by *function* rather than information processed
2. Dorsal stream associated with visuo-motor control
3. Ventral stream associated with object-identification, visual perception and the construction of a description of the scene
4. Visual awareness is associated solely with the ventral stream and with 'visual perception'

4. Questions for the Milner–Goodale Approach

What impact should the M&G hypothesis have on our naïve conception of vision and visual awareness? In particular does the theory make visual awareness *epiphenomenal*?

To address this question we need to ask more about some of the detailed aspects of their hypothesis and then raise the more general philosophical questions with which we started.

(A) Is division between systems quite as clear-cut as Milner and Goodale suppose?

(B) What is the motivation for associating visual awareness *solely* with the activity of the ventral stream?

(C) Why should we think simply in terms of two super-ordinate functions, rather than a multiplicity of functions?

5. *Responses to (A)*

Cf. Jeannerod on patient AT – has optic ataxia but still some indication of ventral processing aiding motor tasks. Namely the patient has better prehensive anticipation of familiar objects suggesting some object identification feeding into motor control;

Cf. Humphreys's unpublished work on stroke patient with attentional deficits that can be overcome through pragmatic priming. This patient has predominantly dorsal damage and yet lacks some visual awareness. (cf. more recent work on extinction and neglect).

6. *Discussion of (B)*

What *function* do Milner and Goodale assign to visual awareness, as opposed to object-recognition and description?

Does the theory require more than a causal correlation?

What information is associated with visual awareness? Is this restricted to information processed in the ventral stream?

7. *Discussion of (C)*

What motivates us in thinking that there are two rather than many streams? The idea of visual experience as the (sole or predominant) output of visual processing might lead us to posit one function. What makes us then stop at two?

8. *The Connection between Visual Process and Visual Awareness*

To see a central problem with Tye's association of visual images with interpreted 2.5-D sketches, note that Marr's (unadulterated) theory of vision makes a fair amount of sense *when viewed as a theory of shape recognition*—and this is so even if, at the end of the day, it is not correct. As an explanation of *visual phenomenology*, however, Marr's theory presents us with a kind of paradox. When we experience visual phenomenology, say, when we look out the window to the garden below, we do not *see* little dots and arrows affixed to 'cartoon' outlines (the primitives of the 2.5-D sketch), nor do we *see* stick figures or generalized cylinders (the primitives of shape recognition); on the other hand, we *are* aware of 'pixel by pixel' intensity information, information that is no longer explicitly represented even in the second stage of processing, the primal sketch. *Starting with the photographic image, that is, the more processing steps taken—each one serving to make explicit more information from the environment—the less 'like' our visual phenomenology the representation seems to become.* How then could such a process possibly give rise to the known phenomenology? What is the relationship between the representational primitives of the various levels of representation and *what we see?* (K. Akins, 'Review of Michael Tye's *The Imagery Debate*', *Philosophical Review*, 103, 1994, p.174.)

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