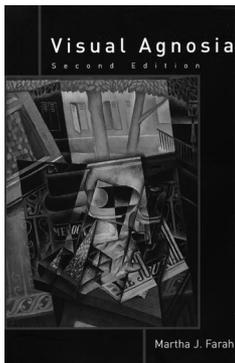


BOOK REVIEWS

Visual Agnosia, 2nd Ed.



Martha Farah
The MIT Press,
Cambridge,
Massachusetts,
2004, \$25.00

After a few years of graduate school in psychology, I was bored with much of the cognitive psychology I was reading. Many issues did not seem all that consequential, and much of the data was not all that impressive. One day I happened to stumble across Martha Farah's *Visual Agnosia*, and I was immediately excited by it. Here was a book discussing conditions that captivated my imagination, affected abilities we rely on everyday, allowed inferences about the neural basis of cognitive mechanisms, and absolutely demanded that theories account for them. I was hooked on visual neuropsychology, and since then, I have been happily working on questions raised in *Visual Agnosia*.

Fourteen years have passed since the first edition was published, and the cognitive neuroscience of object recognition has flourished in the meantime. Farah has now published a second edition to *Visual Agnosia*, updating her classic work with new cases and integrating it with some imaging work. She has expanded coverage to include a chapter on semantic knowledge impairments, extended coverage of prosopagnosia, and included a brief discussion of place recognition disorders.

Farah first discusses agnosic cases with normal sensory capabilities but impaired early perceptual processing. Most interesting is the amazing case of DF who, after carbon monoxide poisoning, was left with apperceptive agnosia. Despite her profound impairment, DF can use visual information for many simple actions. For example, DF shows almost no ability to report or manually indicate the orientation

of a slot. However, when asked to post a letter through the slot, she performs nearly normally. Similarly, she cannot perceive the size of blocks but properly scales her grip to pick up the blocks. Hence, what we consciously see does not guide our actions!

Chapters 3 and 4 cover two conditions that were distinguished first in the original edition of *Visual Agnosia*: dorsal simultagnosia and ventral simultagnosia. In chapters 5 through 7, Farah discusses conditions that are more clearly disorders caused by faulty object recognition mechanisms. Associative agnosia has traditionally been defined as normal perception of objects without recognition of their meaning, and Farah discusses evidence that there are different types of associative agnosia and separable subsystems for object recognition. In neuropsychology, the debate about specialization typically involves two stages. First, evidence accumulates that two abilities believed to involve the same mechanisms can dissociate. If it becomes clear that the dissociation is real, debate turns to characterizing the nature of these specializations. This issue of how to characterize cognitive specializations is one of the big issues currently debated in cognitive neuroscience, and visual recognition has been one of the central battlegrounds for differing conceptions of specialization. In the first edition, Farah reviewed approximately 100 cases of associative agnosia and focused on their abilities with words, objects, and faces. Intriguingly, she found all combinations of deficits except for two combinations. There were no cases of object agnosia without prosopagnosia and alexia and no cases of alexia and prosopagnosia without object agnosia. This led to her influential proposal that there are two shape representation systems. One mechanism constructs structural descriptions for objects that are decomposable into numerous parts such as words, whereas the other mechanism constructs structural descriptions for objects that allow little shape decomposition such as faces and so

must be represented holistically. In the second edition, she reviews cases that have emerged since her proposal and finds that her two-systems theory nicely accounts for these cases as well.

In chapter 7, Farah considers evidence relevant to the characterization of the mechanism used for face recognition. Since the first edition, the answer to this issue is on firmer empiric foundation, because there are now a number of reports using well-controlled tests that demonstrate clear dissociations between face and object recognition. In addition, there are detailed reports of a brain-damaged subject who has normal face recognition despite severely impaired object recognition. Farah argues that these cases indicate that the holistic system is optimized for faces, operates primarily on faces, and is created by specific developmental processes.

Farah goes on to cover place recognition disorders and optic aphasia, and the final disorder discussed is semantic knowledge impairments. Although this may seem out of place in a book about visual agnosia, Farah points out that the main function of visual recognition is the activation of the semantic knowledge about the thing being recognized. Semantic knowledge disorders fractionate so we are again confronted with the nature of specialization, but here there is the added complication of the relation of semantic knowledge to other modalities such as audition and touch.

Farah's book provides a very nice survey of the disorders that affect object recognition. It will certainly appeal to readers interested in gaining an overview of human object recognition, and it will also interest those who are simply curious about the often bizarre conditions studied by visual neuropsychologists. It is a vast literature that Farah has mastered, consisting of many approaches, methods, explanations, and a wide range of languages, so this distillation is a real service to the field. For those who read the first edition and are unsure if they

should read the second edition, I recommend it. More than half of the references cited in this edition have been published since the first edition so this is not simply a repackaging of the first edition. Plus, if you are like me, you can probably use a refresher every decade or so!

Although the conditions were often discussed in light of relevant studies done with normal subjects, I sometimes

found myself wanting more information about normal recognition processes. We now have a wealth of information from behavioral experiments, neuroimaging, and neurophysiology that can help us interpret these conditions and better understand visual recognition. However, that is probably too much to ask of a book on visual agnosia, and it points to the need for book-length coverage of

many of the topics that *Visual Agnosia* discusses. Such a need is a sure sign that our understanding of object recognition is making real progress.

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