the professional rewards can be considerable. (Once a domain is established, it is proper to annex one’s neighbor’s turf by demonstrating how his or her research is consistent with one’s own model.) Thus, the study of the self (and such study is hardly alone in this respect) is marked by a plethora of small, relatively isolated and independent principialties. Virtually the only form of unification is furnished by the common emblem, the concept of self. The emblem is typically used not for purposes of intellectual exchange but for the public show of strength in numbers.

The result of this pervasive condition is that general and integrative theories of self have largely fallen into disrepair. There is little in the way of the kind of conceptual craftsmanship that will ultimately be necessary if significant intellectual gains are to be achieved. Chapters by Epstein and by Cheek and Hogan do begin to respond to this need. However, these are but beginnings. The difficult tasks yet remain. Consider, for example, that many of the models represented in the present volume are based on wholly different if not mutually exclusive motivational assumptions. One therapist claims that people are primarily motivated by the desire for a positive self-image, another believes that people essentially seek stability, another that they desire veridicality of self-conception, and so on. If one began to confront the conceptual task of reconciling these different motivational sources, and inquiring into their bases, conflicts, and variations, major conceptual strides might be made. Further, if the small models could be expanded so as to consider theoretical, ideological, and political implications, others’ theoretical commitments would begin to matter; genuine dialogue might ensue. Most important, theoretical positions of demanding significance might emerge. Islands might give way to a fertile delta.

Reference

Gibson, Representation, and Belief

Mark H. Bickhard and D. Michael Richie (with the assistance of Robert Hughes and James D’Amelio)
On the Nature of Representation:
A Case Study of James Gibson’s Theory of Perception
$23.95

John Heil
Perception and Cognition

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A n interim goal of cognitive science is to work out theoretical conflicts across newly allied disciplines. Toward this end many of us start with Gibson and perception. We start with perception because in the computer jargon so pop-ular these days, it stands as the necessary “front end” to any system involving the mind; and we start with Gibson because his views are most coherent. An increasingly common approach in cognitive science, therefore, is to start with Gibson’s theories, then make a few additions to fill in what may seem incomplete in those theories. Despite the potential difficulties of eclecticism, even the staunchest supporters of the ecological approach make this move. For example, although Gibson (1979) discussed affordances in great detail, claiming their adequacy for perception and action; Michaels and Corell (1981) found it necessary to add effectiveness to deal with action, leaving affordances to perception.

Gibson’s approach to perception is thus seen as a corrigible part-truth, in need of a little theoretical tinkering. This attitude can be found in two new books, one by psychologists Bickhard and Richie, and the other by philosopher Heil. These books are interesting because they are written by persons outside the usual axis of ecological psychology and, more importantly, because they address two old ideas shunned by Gibson, those of representation and the role of cognition in perception, and two relatively new ideas not often discussed by followers or critics of Gibson, those of theory versus metatheory and perceptual belief.

Representations, theory, and metatheory

The central theses of Bickhard and Richie are two: First, any statement about perception is a statement about representation, and second, to understand Gibson one must distinguish between his theory and his metatheory. With regard to the first, I couldn’t agree more. According to Palmer (1978), representation is about the mapping between a represented domain and a representing domain. If the former is the world and the latter is the organism, and if one considers the relations within the latter domain with respect to those within the former, then perception is unavoidably about representation. Of course, as Kolars and Smythe (1984) have pointed out, one must not decide the content of the world before beginning the mapping process; the determination of what shall count as objects in our ontology is the empirical task of perception and representation. Unfortunately, Bickhard and Richie never quite tell the reader how they are using
this latter term. One must trudge through the first part of this difficult but rewarding little book to abstract what appears to be central. This lack of definition is unfortunate because the term representation has caused quibbling in many theoretical discussions of perception.

Gibson, always careful with words, was perhaps overly concerned with this one: He suggested that “the term representation is misleading. There is no such thing as a literal re-presentation of an earlier optic array” (Gibson, 1979, p. 279). Heil agrees with this perspective and makes the same claim against what he calls representationalism. Heil worries that cognitive science rests on a mistaken view that the organism is in contact not with the world, but only with representations of it. Such analyses are correct insofar as they stem from their premises. But I think that their premises are wrong. Although representation and its roots are about depicting, the term is more generally about mappings between world and perceiver. It is only a small step to consider them as about the mutuality of environment and animal (Gibson, 1979, p. 8). Care with words is important, but overconcern with etymology might also lead one to reject the word perception because its roots deal not with the pickup of information but with capitalism and the collection of rents and profits.

In discussing a second overriding issue, Bickhard and Richie take care in distinguishing between Gibson’s theoretical views on perception, which they call “interactionism”; and his metatheoretic approach, which is best called “direct perception.” Interactionism is the cyclical flow of relations between the organism as perceiver and the organism as actor with an object or event. This idea was perhaps best elucidated by Neisser (1976) as the perceptual cycle. That is, the organism perceives an object or event, acts to obtain more information, perceives still more, acts again, and so forth. Time and motion ramify information for perception; action facilitates perception and vice versa. But going back to words, consider a minor point in the use of the term interaction. The environment never acts; it only responds to manipulations of the actor or to other forces, like the wind. The only true interactions are between two or more organisms. For simplicity’s sake, however, I will stick with the authors’ term.

Bickhard and Richie distinguish this interactionism from various types of encoding approaches to perception in which, in their terms, encodings are representations of the world with respect to interpretive devices. Because exploration and manipulation are not part of them, encoding approaches to perception entail a passive perceiver: A stimulus, which originally meant a cattle prod, pricks the organism. These authors suggest, I think correctly, that Gibson’s (1950) early views fit into an ecological direct-encoding model of perception that emphasized the richness of information in the world but that was at variance with his later views (Gibson, 1966, 1979) because it did not emphasize the theoretical importance of an active, exploring perceiver. That is, early Gibson considered directness without interaction.

This analysis sets the stage for what these authors regard as an important confusion in Gibson and in some of those who have interpreted him. Bickhard and Richie suggest that interactionism is an alternative to both direct and indirect perception. That is, despite the fact that Gibson’s metatheory is about directness in perception—which the authors take to mean noninferential and nonmediated encoding, the adjectives of which they leave as relatively unanalyzed concepts—his theory evolved away from passive encoding toward interaction. In an interesting analysis and criticism, they claim that Fodor and Pylyshyn (1981) and Ullman (1980) missed this point, discussing the notion of direct encoding without considering interactionism. Although I find these ideas of theory and metatheory tantalizing, I am not sure how well they can be sustained. In particular, I find Bickhard and Richie not completely convincing on the incompatibility of direct encoding and interactionism; the logic of interactionism seems simply to concatenate matched attributes of perception and action. Moreover, if this distinction falls, then the need for a metatheoretic-metatheoretic analysis of Gibson dissolves. Nevertheless, these are complex issues, and the authors have begun to develop new insights.

In summary, Bickhard and Richie achieve one of their goals and go part way toward the other. That is, they make relevant the discussion of representation in Gibson despite Gibson himself. But they succeed only in raising rather than settling issues of interactionism versus direct perception. In addition, it is unfortunate that they do not consider other discussions of the ecological approach. Timing of publication may have been the determinant here, but it would have been helpful to have seen a discussion of Michaels and Carello (1981) and Turvey, Shaw, Reed, and Mace (1981). Both of these works espouse an ecological approach but disdain the concept of representation, and they both appear to embrace what Bickhard and Richie call “interactionism” as well as direct perception.

Perception, cognition, and belief

Unlike Bickhard and Richie, Heil is as much concerned with cognition as with perception. In fact, he departs from Gibson over this issue, giving a central role to cognition in the act of perceiving. That role deals with concepts and learning. Concepts do not, according to Heil, lead one to the circularity of supposing that perception rests on knowledge and representation and that these must, in turn, rest on perception. Instead, certain rudimentary concepts are probably innate and evolve with experience. And, in turn, it is the richness of concepts that contributes to the ability to pick up more and more from what one has perceived before.

In other words, concepts (even schemas) for Heil are the key to perceptual learning. Heil offers no proof that concepts are involved in perception other than facts like the following: Botanists are better able to perceive aspects about plants than are nonbotanists. This might seem a clear proof of the work of cognition in perception, but it might also be an odd extension of the word perceive. It is an argument about the use of information, not the presence of information, in the optic array. Heil’s view of perceptual learning appears to fit more snugly with that of Neisser (1976) than, say, that of Gibson and Gibson (1955), for whom differentiation of available information rather than enrichment of concepts is the key to understanding perceptual learning. In fairness to Heil, however, I must state that he does have a worthy goal: By integrating perception and concepts he holds fast to the idea that one should not separate perception from cognition.

Much of what Heil has to offer is directed equally to philosophers and to psychologists. Perhaps his most striking analysis is that concerning perception and belief. Ever since the rise of discus-
sions of sense data with Moore and Russell at the turn of this century, a major issue in the philosophy of perception has been the justification of belief about what one perceives. Waffling has been rampant in this literature, and Heil simply cuts through this discussion and asserts that "seeing is believing." He then defends that view ably.

Heil's book is well written and contains many interesting arguments about perceptual errors, which he thinks occur but which he believes are rare, trivial, and uninteresting when compared with cognitive errors; perceptual experience, a phrase that he regards as either redundant or oxymoronic; sensory modalities, which, by picking up on a possibility that Grice dismissed, he chooses to define on the basis of external physical conditions; language and thought, in his discussion of which he elaborates on a Whorfian-like debate between Armstrong and Davidson; differences between representation and mental representation, the former said to be as crucial to discussions of perception and belief as the latter is debilitating; and computational approaches to cognition, approaches in which he thinks belief systems "float on a non-propositional sea" of abilities, skills, attitudes, and the like. He also gives an interesting analysis of information, discussing different ways in which information might be tailored to organisms. But Heil missed an opportunity to set some issues straight regarding the notions of direct and indirect perception. Somewhat better than Bickhard and Richie, he deals with the notion of inference in these two types of perceptual theories, but as a philosopher he might have served us well in reviewing the discussion of direct perception in Locke, Berkeley, Reid, Bailey, Mill, Helmholz, Russell, and Ayer. In closing, Heil suggests that psychologists might conceivably profit by coming to recognize which of their commitments are due not to a clear perception of the nature of things, but to gratuitous philosophical prejudices that serve no purpose save that of forcing one's thoughts into certain narrow channels and sparing one the intellectual labor involved in coming to see things differently. (p. 225)

Amen. But perhaps most engagingly, Heil warns against taking his advice too seriously. He says that "philosophers have too many of their own axes to grind to be very useful to others: beware of phi-

losophers bearing theoretical gifts" (p. 227). Heil's book, like Bickhard and Richie's, is worth the attention of students of cognitive science, especially those interested in perception.

References


Childhood Obesity: A Comprehensive View

Michael D. LeBow

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Until recently, treatments for childhood obesity have been strikingly ineffective. Interventions have included starvation, very low calorie diets, anorectic agents, nutrition education, and psychotherapy. In their review of the literature, Brownell and Stunkard (1980) found that conventional treatments for children were plagued by the same shortcomings as those for adults: small weight losses, high attrition, untoward emotional reactions, and poor maintenance of weight loss. The introduction of behavior therapy to the treatment of obese children has brought new promise, however. This small revolution in treatment and research is examined by Michael LeBow in Child Obesity: A New Frontier of Behavior Therapy.

LeBow's outstanding book will appeal to a broad interdisciplinary audience, including researchers and practitioners in the fields of psychology, education, exercise physiology, medicine, nursing, and nutrition. The book's appeal is based on the author's appreciation of the complexity of childhood obesity and his readiness to examine this disorder from vantage points as diverse as biochemistry and behavioral psychology. LeBow knows that childhood obesity is often more than just the result of eating too much and exercising too little, as revealed by his discussion of the genetic, prenatal,