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Radical Empiricism through the Ages

**Ecological Psychology in Context: James Gibson, Roger Barker, and the
legacy of William James's radical empiricism**

By Harry Heft

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Review by Anthony Chemero

James J. Gibson's ecological theory of perception (1966, 1979) is striking in many ways. It is not merely a theory of perception, but also a theory of what the world is made up of, a metaphysics, and how we can know it, an epistemology. Furthermore, the metaphysics and epistemology Gibson describes are very unusual by present standards. Indeed, Gibson very clearly intended that his theory of perception seem old-fashioned, even pre-Modern. Witness, for example, the first chapter of Gibson's posthumous *An Ecological Approach to Visual Perception* (1979) in which it is claimed that the world is made up primarily of earth, air and water. (What about *fire*?, the reader is invited to ask.) Given this anachronistic strangeness, it is unsurprising that Gibson's work, and the work of those ecological psychologists who follow in his footsteps, is often viewed with skepticism and outright puzzlement by other contemporary psychologists.

Against this backdrop, Harry Heft's *Ecological Psychology in Context* is an extremely important work, a deep and detailed excursion into the history of American psychology and the most sophisticated description of the philosophical background of Gibson's ecological psychology yet put to paper. Heft shows that Gibson's ecological psychology is a direct descendent of the later work of William James, in particular his radical empiricist philosophy. Furthermore, Heft unifies Gibson's approach with that of ecological social psychologist Roger Barker (1968), providing a single theoretical backdrop for perception and social psychology. Heft's book cannot but be of enormous service to the small but growing community of psychologists who are interested in applying Gibson's ideas (and I count myself among them), if only because of

the extraordinary potential explanatory scope and impeccable intellectual pedigree Heft adduces for ecological psychology.

From James to Gibson

Most would agree that Gibson's ecological psychology (1966, 1979) is a part of the Jamesian tradition in that it is a functionalist, rather than structuralist, approach. That is, there is little doubt that Gibson, like James, approached perception and action from a Darwinian point of view. Heft's proposed relationship between James and Gibson runs much deeper than this, though. He argues that Gibson's ideas are an application of James's later radical empiricist phase (1976; originally published 1912). This is a difficult case to make, as Gibson never refers to this portion of the James canon, and Heft admits that Gibson very likely never read it. The connection comes via James's student and Gibson's mentor E.B. Holt, whose molar behaviorism (described in Heft's chapter 2) was explicitly designed to bring Jamesian radical empiricism to psychology. These days, psychologists typically know very little of James's radical empiricism, and Heft does a mostly creditable job of spelling it out and an even better job relating it to Gibson's thinking.

Heft describes radical empiricism as the commitment to three hypotheses. First, all and only things that are experienced exist. Second, along with the objects, relations are experienced. That is, one experiences not just "Iverson" and "Jordan" but also "taller than". Note that by the first principle, this entails that relations exist. Third, the structure of experience is known directly, not via inferences on mental representations. The upshot of these three tenets is

James's neutral monism, a view of the world as ultimately made up of experience. The world, that is, is not divided into two realms, with the mind on one side and the world on the other. There is, instead, just one realm, which is in itself neither physical nor mental. James calls the stuff of this neutral realm 'pure experience'.

Heft makes a compelling case that Jamesian radical empiricism and neutral monism are ancestors (via Holt) to Gibson's theories of perception. According to Gibson (1979), perception is both direct and meaningful. It is direct in that it is non-inferential, requiring no inferences based on intermediaries such as sense data or retinal images. Like James, Gibson realized that indirect, inferential perception places an irremediable, hence unacceptable, barrier between the mind and the world. Perception is meaningful in that animals experience the world as being relevant to their activities. But if perception is to be both direct and meaningful, things as described by physics cannot be the objects of perception. This is where affordances, which Heft describes as properties of the environment that bear specific action-enabling relations to an animal, come in. (I will say more about Heft's explication of affordances below.) As Gibson points out repeatedly, affordances are not ordinary properties of physical objects, but neither are they mental properties, projected by the perceiver onto the physical world. Affordances are real, discoverable properties of the world that exist because of the way things in the world are related to the activities of animals.

The apparently contradictory nature of affordances, Heft shows, makes perfect sense once one views them as Jamesian in nature. Gibson, like James, was a

realist about relations. If relations between animals and properties of the environment are out there, independently of their being perceived, then it makes sense to say that affordances are (directly perceivable) parts of the environment. And once one realizes the influence of James's neutral monism, Gibson's claims that affordances are neither physical nor mental also make sense. With neutral monism nothing is purely mental or purely physical; the world (all of it) is made up of stuff that is just as Gibson said affordances are: "[A]n affordance is neither an objective property nor a subjective property; or it is both if you like" (Gibson, 1979, 129).

Gibson and Barker

Along with connecting Gibson to the father of American psychology, Heft shows that Gibson's ecological approach to perception can be extended to social behavior. He does this by unifying Gibson's theories of (individual) perception with Barker's work on group activity in behavior settings, also called 'ecological psychology' (Barker, 1968).

Both Gibson and Barker provide explanations of the way environmental structure affects behavior. For Gibson, the structure in question is in the environment surrounding the perceiver; for Barker, the structure is in physical and social behavior settings that enable and constrain the action of people in the settings. In Heft's reconstruction, both Gibson's and Barker's ecological theories are describable in the framework of dynamical systems theory (Port and van Gelder 1995). Gibson's theory of perception describes dynamical interactions of individual animals with structures in their environments, and

the way these environmental structures influence behavior. Barker's behavior settings are dynamical systems at a higher level, among the components of which are the animal-environment systems that Gibson's theory describes. This nesting of dynamical systems allows for between-level interactions. The individual animal-environment systems are more or less interchangeable components that (along with various physical and institutional structures) constitute higher-level behavior settings; the behavior settings can act as control parameters, both enabling and constraining the behavior of lower-level animal-environment systems.

Heft's combining of these theories programs has great appeal as a unified program in individual and social psychology. In effect, Heft uses Barker to extend Gibson's ecological psychology of the individual perceiver into the social realm. Heft's combination of Gibson and Barker provides a way to describe affordances that arise in group settings. Barker's theories make clear that affordances are often parts of social behavioral settings, which provides clues about the distribution of affordances in the human environment. Gibson's theory of affordances adds specificity to Barker's behavior settings, which have their identity, because of the affordances they offer to individuals that normally participate in them. Finally, Heft's dynamical systems description of this unified ecological psychology makes it amenable to formalization.

Remaining Issues

It should be clear by now that Heft's book is both an important theoretical contribution to ecological psychology and a valuable addition to our understanding of the history of psychology. The only comparable work in this vicinity is the series of books Edward S. Reed completed before his untimely death (Reed 1988, 1996a, 1996b). If there is one way in which Heft's book is an improvement on Reed's work, it is in his treatment of the metaphysics and epistemology implied by Gibson's ecological psychology.

Unlike Heft, Reed described the metaphysical background to Gibson's approach as being rather similar to the standard metaphysics of the natural sciences, in which the world really is ultimately and unproblematically physical (see especially Reed 1996a). Heft's contention that Gibson, like James before him, was a neutral monist is surely a better description of the metaphysics behind Gibson's theory of perception. This improvement may, however, have an unintended effect: the very strangeness of neutral monism might make ecological psychology itself seem too strange for many contemporary psychologists. Given the insecure position of psychology among the natural science, many people, both within the ecological community and outside it, are likely to prefer a more orthodox, physicalist metaphysics.

To the extent that the above should count as a criticism of Heft's book, it is one that comes from Heft doing his job too well. But there is also one notable way in which Heft does not succeed, and that is in his account of affordances. Heft claims that affordances are body-scaled properties of objects in the environment. To see the difficulty with this view of affordances, consider a

problem that preoccupied James, “the problem of two minds”.¹ James believed that perception is a particular relationship, one that includes both the animal and the thing perceived. Two animals can both perceive the same environmental entity, which takes part in this relationship with both animals. How, James wondered, is it appropriate to say that the animals’ perceptions are really separate if the same object is part of both of them? It seemed to James that perceptions, and hence minds, must overlap. This was unacceptable to James, who felt that minds must be private, and so separate.

Heft claims that Gibson solves the problem of two minds with the use of invariants.² An invariant is an aspect of something that remains constant despite changes in other aspects; invariants are relatively constant over time, and despite differences in viewing angle. Several perceivers, Heft claims, can be in a relationship with the same environmental entity because things in the environment have invariant aspects, which are perceivable from multiple locations. Suppose for example that you and I both perceive an affordance for sitting in the same chair. According to the theory of direct perception that both Gibson and James held, this means that we are both in a particular relation to the chair. Heft claims that we can both perceive the same affordance, yet have separate perceptions, because there are invariant aspects of the chair that bear

¹ There is, I think, a second problem with this view of affordances. In my lab, we are currently collecting evidence that it is ability that is the relevant animal-side of the affordance relation. Ability and body scale, we are finding, are rarely directly related.

² Note that Gibson was concerned with this problem. See Gibson 1979.

relations to the length of our legs, and these invariants are visible from both our vantage points.

It is not hard to see that invariants are of no help here. According to Gibson, animals perceive affordances. If affordances are properties of objects in the environment that bear a particular relation to perceivers, the problem of two minds remains insoluble. Heft's solution doesn't work because if one assumes that perception is a relationship between you and some invariant aspect of the chair and between me and that invariant aspect of the chair, the very same invariant aspects of the chair are still part of both our perceptions. Then our perceptions are no longer separate.

The problem here is with Heft's assumption that what is perceived, that is, affordances, are aspects of the objects perceived. Putting the perceived affordances in the object is a way of falling back into the separation between animal and world that both James and Gibson were so insistent on avoiding. There is a better view of affordances, one that solves James's "two minds" problem, and Heft's insistence on James's and Gibson's realism about relations should have put him in position to see it. An affordance is not some aspect of an object to which a perceiver is related, but instead is the relation itself. In the example above, the affordance is the relation "ability-to-sit-on" between person and chair, and is not part of either separately. Remember that the key feature of radical empiricism is that relations between things exist in the environment and are just as real as the things in the relationship. ("Taller than" is just as real as "Jordan" and "Iverson".) So, it makes sense to say that affordances are

real things in the environment, but also that they are relations between animals and things in the environment. If we take affordances to be relations, you and I can each perceive the affordances of the same chair and still have separate perceptions. This is the case because you will perceive the relation between you and the chair, while I will perceive the relation between me and the chair.

This may seem a fairly minor complaint, a minor technical squabble, especially, given the breadth and depth of Heft's book. This is in some respects true— Heft's book is an important achievement— but an adequate theory of affordances must be at the center of any complete account of ecological psychology.

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