Reinforcing Rilkean Memories

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Killeen and Jacobs (2017; hereafter K & J) make a clear and convincing case for bringing the organism into sharper focus in behavior analysis. Specifically, they argue for an explicitly relational view of reinforcers, and for the inclusion of the organism's state into the classic three-part contingency. The resulting quadruple thus provides a means of capturing the organism's history of interactions with the environment in a concrete, observable fashion. This, in turn, helps undercuts the oft-made criticism that histories of interaction are just as invisible and unavailable to direct observation as the representational accounts on which cognitivists depend, and which behaviorists oppose.

The move to viewing reinforcers as relational—they are what things afford an organism, and not inherent to things in themselves—helps to further emphasize the active role that organism plays in behavior analysis, by making explicit that organisms act on their environments, and are not simply acted on by them. It also generates a productive link between Gibson's ecological psychology (e.g., Gibson, 1979) and behavior analysis; one that has been recognized by previous authors (e.g., Costall, 1984; Morris, 2009, see also Barrett, 2015). Morris (2009), in particular, highlighted the similarities between affordances and Skinner's discriminative stimuli: the presence of a certain object offers possibilities for action that can serve a discriminative function, leading to different behaviors in their presence compared to their absence.

On the one hand, there seems little to object to in K&J's proposal. Skinner himself said that, "the skin is not that important a boundary", as well as making clear that knowledge of the internal physiological workings of the animal would help fill the temporal gap between past and present behavior: "We shall eventually know much more about the kinds of physiological processes, chemical or electrical, which take place when a person behaves. The physiologist of the future will tell us all that can be known about what is happening inside the behaving organism.... [This] account will be an important advance over a behavioral analysis because the latter is...confined to

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functional relations showing temporal gaps...what he [the physiologist] discovers cannot invalidate the laws of a science of behavior but it will make the picture of human action more nearly complete.” (Skinner, 1974, p. 237).

On the other hand, K & J recognize that talk of internal states remains controversial, asking “What have we left as distinguishing our approach as Behaviorism if we don’t take a firm stand against internal states? How do we define ourselves if not by our anti-mentalism?” Internal states do not have to be representational mental states, however. Anti-mentalism is fully compatible with an acceptance of internal states if the latter are viewed as constitutive of behavior, and not as the initiating causes of behavior, nor as content-carrying representational states of the world.

This is also the view put forward in radical embodied and enactivist views, which as K & J mention, have much in common with radical forms of behaviorism. Chemero’s (2009) radical embodied cognitive science, for example, expressly rejects the idea that cognition is a form of “mental gymnastics,” involving the construction, manipulation and transformation of representations. Instead, he offers a view in which the brain is just one, albeit crucial, element in a system that controls dynamic action in an environment that is both perceived directly and may itself contribute actively to the production of adaptive behavior. Thus, “cognition” is an integrated function of body, brain and environment. As with radical behaviorism, radical forms of embodied cognition are pragmatist endeavors that see no reason to accept any principled distinction between “inner” and “outer” worlds.

The unboundedness of the cognitive system is even more strongly emphasized in radical enactivist views, which consider cognitive systems to be emergent activities, and not stable “thing-like” entities. For the enactivist, a cognitive system is akin to a dance: it is not something an organism can possess nor a stable state it can occupy. After all, where is the dance where you dance? Such a question makes no sense, because it’s obviously not inside you, nor is it something that happens to you. A dance is something you do, an activity by which your actions are coordinated with, and dependent on, certain relevant features of the environment (Noë, 2004; Barrett, 2011). There is no sense that there is anything stored inside the organism that is subsequently activated or triggered by environmental stimuli (Varela et al. 1992; Hutto & Myin, 2013). This is something that is also true of Skinner’s behaviorism: “The contingencies which affect an organism are not stored by it. They are never inside it; they simply change it. As a result, the organism behaves in special ways when under special kinds of stimulus control” (Skinner, 1974, p. 121). Thus, the organism undergoes change as a result of its experiences, which then changes its interactions with the environment, and hence changes the cognitive system itself. The latter is not, therefore, a stable “thing,” coterminous with the brain, but an ever-reconstituting and continually-adjusting process of attunement to the environment. As Thompson et al. (1992) state: “Cognition is not the representation of a pre-given world by a pre-given mind but is rather the enactment of a world and a mind on the basis of a history of the variety of actions that a being in the world performs” (see also Hutto & Myin, 2013).

It is at this point that I can enter into the conversation more fully, because the links between embodied and enactivist views are undermined potentially if we classify responses as “consummatory.” This, to my mind at least, has the effect of ensuring

the quadruple remains an entirely linear phenomenon, and as such, it does not easily fit into an embodied-enactivist framework. Moreover, it also weakens K&J's case that reinforcers can be viewed as affordances. This is because, as the above should make clear, behavior is best seen as an ongoing cycle of sensorimotor coordination; something that Dewey (1896) originally pointed out in his criticism of the reflex arc: "[This] idea, as commonly employed, is defective in that it assumes sensory stimulus and motor response as distinct psychical existences, while in reality they are always inside a coordination and have their significance purely from the part played in maintaining or reconstituting the coordination" (Dewey, 1896, p. 360). To speak of consummatory behaviors is to see an act as something that can reach a definitive end-point. This perhaps pushes us back towards a notion of organisms receiving a stimulus and only then becoming active responders, rather than recognizing the continual and ongoing interaction with the environment that forms the heart of Gibson's ecological approach, as well as modern embodied-enactivist theories.

K&J's stance could also be productively combined with aspects of Power's (Powers, 1973) perceptual control theory (PCT) (see Barrett, 2015 for a more detailed discussion). PCT argues that behavior is, quite simply, the control of perception. By varying their behavior, organisms can maintain a stable perception of the world, akin to the homeostatic processes that maintain stability of other bodily functions, and indeed of which perceptual processes form a part. One aspect of PCT that I particularly like is how what we would standardly call a response can be understood as an action performed to generate the right kind of stimulus—the right kind of perception of the world (e.g., the perception of a full stomach and not an empty one, the perception of safety rather than danger). Indeed, in a PCT framework, one cannot really refer to these as responses at all, for the terms lose their meaning in such a context. A glimpse of potential loopyness is present in K&J's proposal, where the organism's state can be seen as part of the feedback loop that links past experience to the present, but the linear formulation, and the notion of consummation, tend to obscure this.

The idea that the organism's state embodies its previous history also brings to mind another recent idea from the world of embodied-enactivist cognition: Rilkean memory (Rowlands, 2015, 2016). This concept may be particularly useful for those who remain skeptical of internal states, worrying their inclusion will mean an inevitable slide from historical to intentional explanation (Baum & Heath, 1992). Rilkean memory provides a means by which new experiences carry with them a trace of the past, without smuggling in representational content as the price.

It should come as no surprise that Rowlands (2015) was inspired to come up with his hypothesis by the poet, Rainer Maria Rilke, who wrote: "And yet it is not enough to have memories. You must be able to forget them when they are many, and you must have the immense patience to wait until they return. For the memories themselves are not important. Only when they have changed into our very blood, into glance and gesture, and are nameless, no longer to be distinguished from ourselves – only then can it happen that in some very rare hour the first word of a poem arises in their midst and goes forth from them" (Rilke, 1985, p.14).

Rowlands (2015, 2016) takes Rilke's insights into the artistic process, and argues that they have much wider significance. It is easiest to explain his idea by example. Imagine a runner whose coach tells her she isn't lifting her knees high enough as she runs. In response to this criticism, the runner works at changing her form, only to find

herself beset by a host of knee problems. It turns out that the runner had the same knee problems once before, and these were the reason why she adopted the sub-optimal low-knee gait in the first place. Now, as a result changing her form, the knee problems are back. It is possible that when this happens the former unpleasant experiences come flooding back too; there is a realization that her gait had been compensating for her knees. But it is also possible that the runner has no recall of her former experiences. In this case, the idiosyncratic low-knee gait is the only remaining trace of her former experience. This is what Rowlands (2015, 2016) means by Rilkean memory: the runner's experiences have changed into her "very blood," her "glance and gesture," and they are constituted solely by her bodily state. It is important to note that nothing hangs on the term memory here, rather "[w]hat is important is that these states...place their subject in a concrete and often significant relation to her past."

As Rowlands understands the term, these kinds of embodied Rilkean memories incorporate both bodily and behavioral dispositions. That is, although there is a distinction to be made between the body and behavior, they can be treated together for his purposes. "The stooping shoulders that accompany a temporary setback might be a behavioral disposition. But – due to muscle shortening, weakening, and so on – the stooping shoulders that accompany a lifetime of disappointment might well have become a bodily disposition" (Rowlands, 2015, p. 147).

Rowlands also discusses affective Rilkean memory. These are captured by sensations, feelings and moods that come upon us when we encounter certain environments. Here, Rowlands uses a passage from the "Wind in the Willows" to illustrate his point, quoting a passage where Mole encounters a particular smell, which seizes his attention, although the reason why remains elusive. After a moment, recollection comes rushing in, and Mole realizes the smells he has encountered are those of "home." The Rilkean memory here is the period prior to the onset of recollection: these are all that remain of Mole's former memories. Thus, while affective Rilkean memories are not embodied in the way described above (although they obviously embodied in the sense of possessing a physiological substrate), affective Rilkean memories are deeply *embedded* in an environmental context: Mole can only have these precise feelings when he encounters a particular context, and he cannot conjure them voluntarily; they simply find him.

The concept of Rilkean memories seems particularly useful in K&J's new quadruple because there is no danger of sliding into cognitivism. Rilkean memories are not memories of facts or episodes. They are caused by such things, but they are not *about* them. Indeed, they are not about anything at all; they have no content. Rilkean memories are thus inherently resistant to cognitivist reinterpretation: they lack all the characteristics that would allow them to be transformed into intentional propositions. They remain entirely historical and, in this sense, they are "the dark matter of memory. They hold everything together." (Rowlands, 2015, p. 154). Embodied Rilkean memories seem good candidates for the kinds of "internal states" K&J speak of, although as we have seen, they are neither internal nor external to the organism, but rather are inscribed on the organism's body itself.

Compliance with Ethical Standards

Conflict of Interest I declare there is no conflict of interest.

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