

Book Review: HUTTO, Daniel and MYIN, Erik, *Evolving Enactivism – Basic minds meet content* (2017, MIT Press, xxvi + 328 p.)

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BEPE FAPESP #2016/20284-1

Article info

CDD: 128.2

Received: 04.12.2017; Accepted: 13.12.2017

DOI: <http://dx.doi.org/10.1590/0100-6045.2018.V41N1.LN>

Keywords:

Enactivism

Intentionality

Cognition

Naturalism

ABSTRACT

The following review presents some of the themes developed in *Evolving Enactivism - basic minds meet content*. Hutto and Myin's new book on the Radical Enactive approach to Cognition (REC) aims to provide a thoroughly naturalistic explanation for cognitive phenomena. The main themes investigated here concern Hutto and Myin's criticisms of the nature and role that the notion of content traditionally plays in mainstream cognitive science explanations of cognition and their attempt to provide an account for a variety of cognitive phenomena in which the questionable notion of content is not necessary. It is argued that REC is a promising research framework for cognitive phenomena and deserves further investigation.

Hutto and Myin's most recent work, *Evolving Enactivism – Basic minds meet content* (2017, MIT Press, xxvi + 328 p.), contains the development of the Radical Enactive (or Embodied) approach to cognition (henceforth REC), initially presented in their previous book *Radicalizing Enactivism – Basic minds without content* (2013), where they laid out the basic framework for REC. REC aims to fully embrace the “E” (embodied, embedded and ecological) aspects that for an enactivist approach are fundamental to the adequate understanding of cognitive phenomena. For REC, cognitive phenomena amount to how an

embodied and embedded organism which has an ontogenetic and phylogenetic history engages and interacts with the environment in specific ways. Nothing more (but also nothing less) than invoking these interactions, their history and their effects is needed in order to achieve comprehension of cognitive activities, be it, the jumping of an insect, the initial clumsy grabbing of a human baby or imagination and memory. More specifically, Hutto and Myin question the legitimacy and the necessity of relying on the closely related notions of *representational content* and *contentful mental states* in naturalistic explanations of cognition.

In mainstream cognitive science, cognition is usually taken to be formed by a series of processes that start with the retrieval of external information by the sensory organs and end in the overt behavior of the subject. In between, representations, which have as their content the information picked up by the senses, are created by brain processes. These contentful representational states can be multiply used: they can be stored, processed, manipulated and they interact with already existing content carrying representational vehicles to finally inform and cause the general actions of the subject. This mechanistic view on cognition, in which its parts, operations and organization are understood in terms of the informational processing of content-bearing states and their interactions, is firmly rejected by REC.

In REC's view, the positing of mental representations and representational contents as the mechanistic components of cognition, besides not adding any explanatory value, also faces a fundamental problem: the *Hard Problem of Content* (henceforth HPC), an important challenge for explanatory naturalists. In general terms, for a representation to be contentful is for it "to take ('represent'; 'claim'; 'say'; 'assert') things to be a certain way such that they might not be so" (p. 10), that is, representations have specified conditions of satisfaction. The HPC amounts to explaining how a *mental* state can semantically represent something, that is, how mental states acquire their contents without violating any naturalistic constraints. The problem arises whenever content is presupposed to be "literally 'extracted' and 'picked up' from the environment as to be 'encoded' within minds" (p. 30), as a sort of abstract commodity that can be traded in and out from organisms (p. 31). According to Hutto and Myin, the challenge posed by the HPC has not been successfully met: the available notions of content are either too weak to account for the semantic properties representations are supposed to play in cognition, or too strong to meet the constraints of naturalistic explanation. Hutto and Myin claim that "we lack any

respectable scientific account of how to understand the idea that cognition is literally a matter of trafficking in such informational contents” (p. 31). As the matter stands, it is indeed possible that the fundamental cornerstones of Cognitive Science are in fact unwarranted theoretical posits.

In addition to the exposition of their substantial doubts about the assumptions that underlie much of the mainstream research on cognition, Hutto and Myin also argue that it is perfectly possible to explain cognition without relying on mental content and mental representation, and in their books they offer reasons to be confident about REC’s explanatory potential. REC claims that many of the cognitive actions which organisms perform do not depend on the employment of contentful representations. Saying that organisms do not rely on contentful representations when engaging in cognitive activity, however, does not amount to saying that organisms are not directed to the world: they do interact with the world, and respond to its offerings, but not in the contentful ways associated with semantic properties as exhibited, for example, by linguistic judgments.

Hutto and Myin propose a “duplex account” of cognition which allows for the existence of, but insists on the difference between, *contentless but nevertheless world-targeting-cognition* and *content-involving cognition*. The first kind of basic capacities “can be extremely flexible, open-ended and content-sensitive” but should not be considered as rudimentary or “low-graded forms of cognition” (p. 89); they merely come first in the ontogenetic and phylogenetic development of the organism. Basic cognition, then, encompasses some of the central forms of human cognition both in children and adults, such as perceiving, imagining and remembering (p. 90). Content-involving cognition, by contrast, is “a special achievement” (p. 90), and only appears through the mastery of certain socio-cultural practices. By distinguishing between cognition which does and does not involve content, Hutto and Myin emphasize the fundamental difference that there is “between responding to and keeping track of covariant information and making contentful claims and judgments that can be correct or incorrect” (p. x). Thus, one of the tasks REC sets itself concerns explaining how dynamic and non-linear couplings between organisms and their environments can give rise to content-involving cognition, as the book’s title suggests.

The first chapters set the scene, and recover some of the arguments presented in the previous book. Chapter 1 makes explicit where REC is positioned within the theoretical landscape, by taking a critical stance on the

nature and the role played by representational content in cognition. The strength of the commitment to representation and content can vary: from claiming that *all* kinds of cognitive capacities depend necessarily on contentful representations which are always neural and brain-bounded (what they call ‘unrestricted-CIC’) to more embodied varieties, in which *some* of the representational states are embodied and not only brain-bound, and/or possess bodily content (being, thus, conservative enactive approaches to cognition, or ‘CEC’). REC’s claim, in its turn, is that *not all* kinds of cognitive phenomena necessarily employ internal contentful representations.

In the chapters that follow, Hutto and Myin discuss other existing research programs and lines of thinking, such as Kandel’s (2001) empirical research (chapter 2), Predictive Coding (chapter 3) and Auto-poietic Adaptive Enactivism and Ecological Dynamics (chapter 4). Hutto and Myin argue that, after stripping these various approaches of their commitments to the notions of representation and content, such approaches are, at least in principle, compatible with the REC framework. With the same aim, a similar process of “REctification” is then applied to the philosophical doctrine of Teleosemantics (chapter 5), in order to account for the notion of *Ur-Intentionality*.

Ur-Intentionality, the main theme of Chapter 5, is explored through questioning current takes on the Brentanian notion of intentionality. Hutto and Myin point out that the notion of intentionality that has been assumed in existing attempts aimed at its naturalization is too narrowly-focused, since it is very often only concerned with one single kind of intentionality, namely the content-involving one exhibited paradigmatically by propositional attitudes and linguistic judgments, but also by states with nonconceptual content. To account for the diversity of cognitive phenomena, Hutto and Myin insist that a more nuanced approach to intentionality is necessary. Ur-intentionality consists in the relation to the world that basic cognitive capacities exhibit: “it is possible to think of the most primitive form of intentionality (...) in non-contentful, non-representational ways while still allowing that such intentionality exhibits a trademark property of the intentional – that of being an attitude directed towards an object” (p. 95). Ur-intentionality, then, is explained by appeal to the result of the REctification of Teleosemantics, *Teleosemiotics*. Original Teleosemantics defines mental contents according to the biological proper functions selected by evolutionary processes. However, mental content defined only by its evolutionary function is not adequate to account for intentionality, since it does not allow for the individuation of the intensions (with an “s”) of

the purported representational vehicles (a worry already raised by Fodor (1990), when he argues that teleological accounts of content are not able to provide a solution to the disjunction problem). Consequently, Teleosemantics does not provide an appropriate explanation of the semantic properties of contentful representations. However, it can offer something else. Teleosemantics (the RECtified Teleosemantics) aims not to provide a “robust semantic theory of content” (p. 154) but rather an account of the systematic relations that bear between the organism and the environmental features that affect it. Such systematic relations also incorporate phylogenetic traits, selected through the species’ biological history, and ontogenetic traits, developed in the individual history of the subject (pp. 117-118). Those elements account for the normative dimension that REC attributes to contentless behavior.

Chapter 6 explains why REC is not defeated by its own criticisms to the tradition, that is, why it does not fall prey to HPC and how suggesting a “duplex account” does not lead to a “saltationist view”, that is, a view that implies evolutionary discontinuity. Some critics claim that the HPC applies to REC as well, since REC is not an eliminativist or nihilist view on content and in fact acknowledges the existence of content-involving cognitive capacities that arrive on the scene later than basic ones. A similar issue lies at the origin of the “saltationist” criticism: how to understand the arising of content in cognition, without presupposing there to be a naturalistically illegitimate leap from the contentless activities to the content-involving ones? REC’s answer to these criticisms depends on the “relaxed naturalism” that it proposes. According to REC, resources such as Cognitive Archaeology, Anthropology and Developmental Psychology, for example, are as scientifically respectable as more restricted ones, such as Neuroscience or Physics. Hence, the kind of content that REC allows into its naturalistic picture arises from the “development, maintenance and stabilization of practices involving the use of public artifacts through which the biologically inherited cognitive capacities can be scaffolded in very particular ways” (p. 145). It is a complex story to tell but, according to REC, there are no fundamental obstacles that exclude it of being told. This is the aim of the second part of the book: to show how REC can be satisfactorily applied to particular cases. Hutto and Myin provide “naturalistically relaxed” considerations on how to properly describe perceiving (chapter 7), imagining (chapter 8) and remembering (chapter 9). They offer a positive account for such phenomena, dismissing some common presuppositions that they take to prevent a more adequate understanding of

them. To exemplify, let us briefly consider REC's account on memory, a phenomenon that is widely supposed to always require contentful representations to be stored and reused later.

First of all, REC emphasizes that memory cannot be accounted for by a single and general explanation, for it is constituted by different processes and functions. So, it is not the case that memory's only (or even main) function is to reproduce the past accurately. REC acknowledges roughly three distinguishable types of capacities in a "memory spectrum": non-declarative, declarative and amalgamated kinds of memory. Procedural memory is a *non-declarative* type of memory that is "purely embodied and enactive" (p. 203), that is, contentless, even if it implies sensitivity to particulars of individual places or things. Remembering how to execute a task in ways sensitive to the specific context at hand does "not require representing any specific past happening or happenings, and specially not representing these *as* past happenings" (p. 205). This can be considered the most ubiquitous type of memory, shared by humans and other animals alike, and, it is important to emphasize, it is *not* the exercise of a blind habit (p. 204). REC's take on it can be made more specific: non-declarative memory is contentless, for it does not require anything more "than reinitiating a familiar pattern of prompted response, albeit with adjustments that are dynamically sensitive to changes in circumstance and context" (p. 205). On the other side of the spectrum lies a completely different kind of memory which "absolutely requires contentful representation" (p. 205), namely the *declarative* types of memory. *Autobiographical* declarative memory involves contentful representation to enable the description of past experiences. Drawing on research in Developmental Psychology, more specifically from a strong interpretation of Social Interactionist Theory (SIT), REC claims that autobiographical memory "requires the development and exercise of socioculturally acquired narrative capacities" (p. 207). REC's point is that before this kind of special sociocultural interactive practice is mastered, which is accomplished through involvement with social artifacts such as narratives, children cannot make contentful autobiographical judgments. Unlike weak versions of SIT, which are compatible with unrestricted representationalist views on memory, REC holds that it is not the case that the development of full-scale autobiographical memory is a matter of the enhancement or improvement of a more primitive form of an autobiographical memory skill that is already present before involvement with social narratives. Rather, narrative practices are precisely what make autobiographical memory possible.

Other functions are developed through narratives as well: the sense of self, that is, “what it is to be a person with a temporally extended existence” (pp. 210-211) and the establishment of social cohesion, not only within smaller groups, such as families, but also in larger societal groups (p. 212). In sum, for REC, memory consists in a variety of capacities, some of which involve representing the past. However, by being dependent on the engagement with sociocultural practices and artifacts, some memory capacities are not a matter of “built-in talent but an achieved skill” (p. 239).

Finally, the epilogue further explores the persistent attachment to the notion of representation in theorizing about Neurodynamics. Hutto and Myin analyze representational talk as it is employed in Neuroscience. They argue that the properties attributed by neuroscientists to neural patterns are not necessarily incompatible with REC, even though they are very often called “representational”. However, this then raises the question: what is the brain’s task, if it is not to represent, or to host representations? In REC’s view, it is to enable organismic contentless connections with worldly features, allowing for cognitive phenomena to unfold. Contrary to what is assumed in influential views, it is thus not necessary for brain cells or cell assemblies to contentfully represent the world in order to influence and allow for cognitive behavior. As such, while it is Neuroscience’s task to determine what are the causes of cognitive activity, REC claims that contentful neural episodes need not figure among those causes.

Throughout the book, Hutto and Myin urge for serious consideration of Enactivism, especially their radical version. Enactivism has received a significant amount of attention recently, which includes a variety of criticisms. For example, enactivist claims are sometimes criticized for being vague and/or trivial. Other times, it is claimed that enactivist approaches are only appropriate for more practical activities, that is, those activities that involve the body and environment in obvious ways, but not for more “sophisticated” higher cognitive activities. In the specific case of REC, it has been argued that it is a purely negative approach, and that it does not provide any positive considerations. It is safe to say that Hutto and Myin’s book successfully addresses the aforementioned criticisms: not only do they make clear what REC’s commitments are, they also show that it is possible for REC to account for diverse cognitive phenomena. Moreover, if REC is true, then it is not a trivial matter. Abandoning the main tenets of Cognitive Science, that is, the assumption that cognition is necessarily dependent on the notions of content

and representation, as REC proposes, fundamentally transforms the pressing issues concerning cognition. In that sense, REC can be considered as having a truly revolutionary character.

Hutto and Myin's philosophically and empirically informed analysis shows that they are well aware that an adequate understanding of cognition depends not only on more experimental data but also involves philosophical and highly theoretical matters. It is of great importance to be clear not only about the empirical adequacy of theories, but also about the assumptions that underlie and motivate these theories. Of course, whether REC is successful in fulfilling its aim of providing a thoroughly naturalistic account for cognition is a matter that demands further investigation, but *Evolving Enactivism* shows that there are good reasons to consider REC a promising framework from which an enactive cognitive science can proceed (and evolve). Many issues – language, mathematics, consciousness, to name a few – still deserve to be reconsidered thoroughly in a RECish, pragmatic framework. Nevertheless, the second part of the book, on notoriously difficult issues such as perception, imagination and memory, demonstrate that the prospects look good. As Hutto and Myin repeatedly state, REC cannot be dismissed just because of traditional and cherished assumptions. REC's radicalism is thus not gratuitous. It is instead a well-motivated and powerful answer to the sorts of explanatory stalemates and difficulties that cognitive science has struggled but so far failed to solve.

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