

# Contentless basic minds and perceptual knowledge

Mentes básicas sem conteúdo e conhecimento perceptual

Giovanni Rolla<sup>1</sup>

## ABSTRACT

Assuming a radical stance on embodied cognition, according to which the information acquired through basic cognitive processes is not contentful (Hutto and Myin, 2013), and assuming that perception is a source of rationally grounded knowledge (Pritchard, 2012), a pluralistic account of perceptual knowledge is developed. The paper explains: (i) how the varieties of perceptual knowledge fall under the same broader category; (ii) how they are subject to the same kind of normative constraints; (iii) why there could not be a conflict between the different varieties of perceptual knowledge; and (iv) why the traditional epistemological inquiry is inclined to overestimate the role of propositional perceptual knowledge.

**Keywords:** Radical enactivism, perceptual knowledge, knowledge-how, knowledge-that.

## RESUMO

Assumindo uma posição radical em cognição corporificada, de acordo com a qual a informação adquirida através de processos cognitivos básicos não possui conteúdo (Hutto e Myin, 2013), e assumindo que a percepção é uma fonte de conhecimento racionalmente fundado (Pritchard, 2012), uma concepção pluralista de conhecimento perceptual é desenvolvida. Este paper explica (i) como as variedades de conhecimento perceptual são incluídas na mesma categoria; (ii) como elas são sujeitas às mesmas restrições normativas; (iii) porque não poderia haver um conflito entre as diferentes variedades de conhecimento perceptual; e (iv) porque o inquérito epistemológico tradicional tende a superestimar o papel de conhecimento perceptual proposicional.

**Palavras-chave:** Enativismo radical, conhecimento perceptual, saber-como, saber-que.

## Radically embodied cognition

The main claim of embodied views of cognition is that cognition cuts across brain, bodily actions and the environment. Hurley (2001), for instance, holds that cognitive processes are horizontally modular in structure and involve internal states, the body and the environment, with input and output in feedback loops. On this view, action and perception are constitutive of one

<sup>1</sup> Universidade Federal do Rio Grande do Sul. Av. Paulo Gama, 110, 90040-060, Porto Alegre, RS, Brasil.  
E-mail: rollagiovanni@gmail.com

another – thus implying an *enactive* approach to cognition – and cognition emerges from a cycle of action-perception-action. This implies the rejection of a hierarchy (vertically modular in structure) from perception to cognition to intentional action. Likewise, Noë (2004, 2012) argues that perception is constituted by one's actions in the environment, specifically the actions that manifest practical understanding in the exercise of sensorimotor abilities. A philosophical advantage of construing cognition in embodied and enactive terms is the resulting phenomenological and epistemological differences between genuine perceptual states and deviant states (such as hallucinations and illusions). In deviant states, either one is not interacting with the environment at all or one's actions are not what would be expected if the circumstances were normal – in both cases, one falls short of achieving a perceptual state. Embodied cognition, therefore, offers a welcome dissolution of an otherwise persistent skeptical anxiety, viz. If we were in a radical skeptical scenario, we would entertain the same perceptual states as we do in non-skeptical scenarios and yet we would fail to access the world. This cannot be so according to embodied cognition: brains in vats could not cognize the same way we do.

Despite that advantage, the usual objection leveled against embodied views of cognition is that they erroneously take mere causal factors (one's activities in the environment) as constitutive of the relevant cognitive processes, which are, according to some critics, exclusively brain-bound. As Adams and Aziwa (2001, 2010) point out, and as echoed by Prinz (2009), to say that bodily actions and the environment are *causally relevant* for a perceptual state is borderline trivial and hardly informative, whereas the more contentious claim that bodily actions and the environment are *constitutive* of a perceptual state is unmotivated. For if I am to turn my head to the right, I certainly acquire a new perceptual state *because* I moved my head and deployed a set of muscles and part of my sensorimotor system in doing so, but this is perfectly contingent in relation to my perceptual content (for someone could have shifted my chair). Therefore, my newly acquired perceptual state is only causally dependent on my bodily actions in this specific environment.

In response, Hutto and Myin (2013) argue that the appeal to a distinction between cognitive processes properly conceived and merely causal or external features is question begging. That strategy, they claim, assumes that there is a principled way of distinguishing cognitive processes from causally relevant factors, which in turn hinges upon the idea that cognition is contentful whereas causal or external events are not intrinsically contentful. They propose REC (Radically Enactive Cognition), the view that basic minds are contentless: although some higher mental processes are character-

ized by vehicles carrying contentful information, there is a non-empty class of contentless processes which constitute our fundamental interactions with the environment. These basic processes are explained by one's actions, and the information they convey is explained in terms of the scientifically respectable notion of *information as covariance*. On that account, a certain state of affairs carries information about some other states of affairs if and only if "the occurrences of these states of affairs covary lawfully or reliably enough" (Hutto and Myin, 2013, p. 66). A more onerous notion of contentful information holds that information *says something about something else* – therefore, on the later notion, information has semantic and syntactic properties. They write:

[...] it is important to distinguish the notion of information-as-covariance from its richer cousin semantic or intentional information – the kind of contentful information (the message) that some communications convey. [...] Call this information-as-content. Naturalistic theories with explanatory ambitions cannot simply help themselves to the notion of information-as-content, since that would be to presuppose rather than explain the existence of semantic or contentful properties (Hutto and Myin, 2013, p. 67).

The target of their criticism is the widespread assumption that the ascription of contentful information is necessary for cognition; in other words, that all cognitive acts are either representationally or conceptually articulated<sup>2</sup>. The fundamental problem with the views that fall under what they call CIC (Cognition (necessarily) Involves Content) theories is the challenge of offering a naturalistic explanation of contentful basic minds, whereas contentless basic minds can be modeled and are philosophically sound<sup>3</sup>. CIC theories with naturalistic constraints, therefore, face the following dilemma: they can either give up on the ubiquity of contentful information in cognition – thus opening the way to radical enactivism – or aim to reduce information-as-content to information-as-covariance. On this latter horn of the dilemma, the proponents of CIC face the Hard Problem of Content, for the covariance we find in physical states does not have, by itself, semantic and syntactic properties. As Ramsey puts it:

[...] the sort of roles we ordinarily associate with representation are not easily cashed out in causal-physical terms. When we think of representations, we think of things that perform tasks like "standing for something else" or "informing" or "signifying" and such. Yet, it is far from clear just how these

<sup>2</sup> Hutto and Myin also aim at what they call CEC (Conservative Embodied Cognition) theories, according to which cognition necessarily involves *coupled* or *action oriented* representations that bound an individual to an environment, such as the theories developed by Millikan (1995) and Clark (1997).

<sup>3</sup> See Chemero (2009) for the discussion of several models of cognition without representations explained by dynamical systems theory.

*sorts of tasks could be implemented in a purely physical system (Ramsey, 2015, p. 2).*

It follows that, if one opts for a naturalistic explanation of cognition that necessarily involves (representational or conceptual) content, one ultimately faces an explanatory gap between covariance and content. Therefore, the argument that cognition is not to be confused with causally relevant factors (because it supposedly involves content) does not undermine the embodied stance insofar as that argument only assumes, but fails to explain in the naturalistic framework, the notion of contentful information.

## Contentless knowledge?

If Hutto and Myin's criticisms are correct, it follows that basic cognitive processes such as perception are not intrinsically representational or conceptual because they trade upon information as covariance. Perception, therefore, is not open to the assessment of its accuracy or inaccuracy, its truth or falsity, because: "[...] the biologically basic modes of organismic responding don't involve content, where content is understood in terms of either reference, truth, or accuracy" (Hutto and Myin, 2013, p. 78). And:

*A truly radical enactivism – REC – holds that it is possible to explain a creature's capacity to perceive, keep track of, and act appropriately with respect to some object or property without positing internal structures that function to represent, refer to, or stand for the object or property in question. Our basic ways of responding to worldly offerings are not semantically contentful (Hutto and Myin, 2013, p. 82).*

Assuming that perceptual experience is a case of contentless basic mind, the following problem arises: how can a contentless process generate perceptual *knowledge*? It seems that we cannot have it both ways, because perceptual knowledge is usually taken to be essentially contentful. Clearly. The underlying supposition is that perceptual knowledge is conceived exclusively as *knowledge-that*, but even if we eschew this supposition and follow a Rylean line – hence offering a non-reductionist account of other forms of perceptual knowledge, such as knowledge-how/where/when – we have to face some challenges, viz. explaining (i) why the varieties of perceptual knowledge fall under the same broader category; (ii) whether they are subject to the same kind of normative constraints; (iii) whether there could be a conflict between the

non-propositional and the propositional varieties of perceptual knowledge; and (iv) why perceptual knowledge is not the way that traditional approaches usually take it to be, namely, as abounding propositional knowledge.

Before attempting to answer these questions in the framework of a radically enactive approach, we can briefly outline two alternatives that do not sound as appealing: on the one hand, we could give up on the idea that basic minds are contentless and avoid the burden of explaining contentless perceptual knowledge. This, however, would lead us back to the objection raised by Prinz, Adams and Akiwa – and, failing to meet that challenge, one of the main philosophical gains of embodied views of cognition would lose its punch, namely, the explanation of the difference between perception and deviant states. Moreover, this view would have the additional problem of explaining (or explaining away) intuitive cases of bona fide cognition that do not call for the ascription of content. On the other hand, we could retain the ideas that basic minds are contentless and that perception is a basic activity, and give up on the idea that perception yields perceptual knowledge, but this would be a ruthless revisionist approach to epistemology, because it would imply skepticism about perceptual knowledge. I find both alternatives unconvincing, so I now turn to the challenges mentioned above in order to show that we can have contentless basic minds *and* perceptual knowledge.

## Perceptual Knowledge-how/wh and Perceptual Knowledge-that

In order to show how the varieties of perceptual knowledge fall under the same category, we need to outline some of the conditions for perceptual knowledge-that. Firstly, it is uncontroversial that knowledge-that is factive, that is, knowing that *p* implies *p*. Secondly, it is also widely accepted, since at least Gettier (1963), that knowledge-that is incompatible with luck. Among the epistemologies that aim to meet this requirement, the most successful one is the Safety Theory (Sosa, 1999; Pritchard, 2005), according to which one knows that *p* iff one could not be easily mistaken about *p*. The relation between the subject and the target proposition is usually construed as a modal one, so that in most or all nearby possible worlds in which the subject believes that *p*, *p* is true<sup>4</sup>. Obviously this is not enough, for there could be nearby possible worlds in which one believes falsely that *p*, but which are irrelevant to the assessment of one's belief in the actual world. One such case was described by Pritchard (2005): a subject sees that his house is on fire – and plausibly knows that it is – but could have easily believed in the false testimony of the village bully

<sup>4</sup> Although this discussion here turns to be about beliefs rather than knowledge, it is also widely accepted that knowledge implies belief, in a way that knowledge-that implies a belief which is not true due to luck. This might seem in contrast with another take on knowledge, such as the knowledge-first epistemology famously defended by Williamson (2000). What a knowledge-first epistemologist would deny is that the concept of knowledge is a complex concept analyzable into simpler ones, such as belief, truth and some further non-circular condition – but as Williamson is careful to note, this does not mean that knowledge does not imply belief.

(in this alternative scenario, his house was not on fire but the bully told him so). Clearly, the knowledge acquired by seeing that one's house is on fire is not tarnished by the fact that one could easily be mistaken about that. The key here is to distinguish the method of belief acquisition in both cases and use it in ordering the relevant nearby possible worlds in which the subject believes that  $p$ . So, one knows that  $p$  iff in most or all nearby possible worlds in which the subject believes that  $p$  through the same method,  $p$  is true. Finally, there must be direction of fit from belief to truth (Pritchard, 2009): the individual must be able to adjust her beliefs in accordance with the relevant changes in the world – because we could conceive of a scenario where the world is adjusted to fit the beliefs of the individual (imagine a benign demon is in control). It seems that there would be something epistemically amiss with the subject in that case, plausibly because her true beliefs would come for free.

We outlined three aspects of perceptual knowledge-that: (i) factivity; (ii) the safety of belief acquisition given a fixed method; and (iii) a direction of fit from subject to the world. Mutatis mutandis, all these aspects are met by the correct understanding of the embodied abilities relevant for non-propositional varieties of perceptual knowledge. (Obviously, the need for a propositional attitude is left out in this brief overview, for it is the main difference between perceptual knowledge-that and the other forms of perceptual knowledge).

First, the analogue of factivity when we talk about embodied abilities is success in achieving a certain end. One is successful in achieving an end  $E$  by exercising an ability  $A$  if the exercise of  $A$  is causally relevant for the occurrence of  $E$ . For example, I am successful in locating a cup of coffee to my right by moving my head to the right – my ability in this case, moving my head to the right, is causally relevant for achieving the end of locating it. Obviously, more complex actions could be undertaken in a scenario like that, for example, I am able to not only locate a cup of coffee, but also pick it up and bring it to me. In this latter case we have more steps and more modules of my perceptual system are involved in achieving the relevant ends. However, in neither case do we need to say that the relation between exercising  $A$  (or the intermediate actions  $A_1, \dots, A_n$ ) and achieving  $E$  (or  $E_1, \dots, E_n$ ) needs to be the object of propositional attitudes by the individual in order to guarantee success. Both cases are paradigmatic examples of *knowing where* – because I am able to locate the cup in the room – but are also cases of *knowing when* – because I am able to track the cup through time – and *knowing how* – because I perceive what kind of actions I am able to perform given the information I acquire from the cup, in this environment, and my actual bodily configuration and dispositions. In order to see the last point, note that, if I had a stiff neck I could be unable to turn my head to the right, but I would know how to (*ceteris paribus*) locate the cup by turning my torso around a bit more painfully. If my right arm was broken, I would have to exercise other parts of my sensory system to pick the cup, and so on.

There is some controversy, however, on whether possessing and exercising an ability in appropriate conditions implies success. Comparing abilities with dispositions, Chemero observes that:

*The problem with seeing abilities as dispositions is that when coupled with the right enabling conditions, dispositions are guaranteed to become manifest. The soluble solid sugar will always dissolve in water in suitable conditions. This is not true of abilities. Having the ability to walk does not mean that one will not fall down even in the ideal conditions for walking. This is to point out that there is something inherently normative about abilities. Individuals with abilities are supposed to behave in particular ways, and they may fail to do so (2009, p. 145).*

Although we do need to recognize the fallible character of cognition (in general), we need not locate fallibility between a properly exercised ability and the success in achieving a goal. If that were the case, the analogy with factivity would seem to be compromised, for abilities would not guarantee success. Alternatively, we can follow Millar (2011) and claim that in appropriate circumstances, the exercise of an ability is guaranteed to achieve the desired end. Therefore: “the fallibility associated with recognitional abilities consists in not always exercising them when we aspire to do so, not in sometimes exercising them but failing to come to know” (Millar, 2011, p. 334). Although Millar is focusing on conceptual abilities and *knowing-that*, we can capture the gist of his idea in more general terms: one can be unsuccessful by failing to properly exercise the relevant ability  $A$ , not by properly exercising  $A$  and even so failing to achieve  $E$ . This is connected with the second condition of perceptual knowledge-that, the method-related safety: having an ability  $A$  on this view means that an exercise of  $A$  could not easily go wrong (i.e., one could not easily fail to exercise  $A$ ). Just as in Chemero's view, having the ability to walk does not mean one would not fall every once in a while, only that one would fall if one fails to exercise the abilities involved in walking – hence, there is a behavior one is expected to manifest if one possesses an ability. By now it should also be clear that abilities themselves are methods for achieving specific ends, thus providing a proper analogy with method-related safety of belief formation. I could, after all, achieve the end of locomotion from  $X$  to  $Y$  by walking, but also by cycling. The fact that I could not achieve that end by cycling (imagine I do not know how to cycle) does not mean I would not be successful by walking.

The point about direction of fit is more delicate and we should take it with a grain of salt. For although there is a clear sense in which the particular exercises of the relevant abilities and the obtainment of certain ends are due to the individual, and to that extent the analogy with perceptual knowledge-that holds, things are not so clear on a larger scale.

According to radical enactivism, the individual's actions in the environment are constitutive of her cognition, but which actions she can perform is determined partly by how the environment is displayed. This is also the reason why embodied abilities are strongly *situated*, unlike conceptual abilities, which are general and compositional. Moreover, actions cause changes in the environment and this in turn changes the set of possible actions one can undertake. Consequently, there is an interdependence between individual and environment – this is why most proponents of embodied cognition take the coupling of individual and environment to form a dynamical system, a system that changes through time and that can be described and predicted by dynamical systems theory without appealing to representational contents. Also, we should note that the set of features of the environment that enable specific actions given one's abilities are cognitive niches (Gibson, 2015) – but niches are not static. As the interactions between individual and environment unfold, cognitive niches can be built and arranged in order to better fit the individual's abilities and enable different activities. Therefore, although there is an analogy between, on the one hand, the direction of fit of the kind of perceptual knowledge acquired by the exercise of embodied abilities and, on the other, the direction of fit required for knowledge-that, the mutual influence between individual and environment that happens over time could be taken as evidence of a profound disanalogy. However, as long as we focus on specific exercises of sensorimotor abilities and their relation to the non-propositional varieties of perceptual knowledge, the analogy is preserved: an individual still has to *exercise* her ability in accordance with what the environment offers in order to come to know-how/where/when – therefore, non-propositional perceptual knowledge, like perceptual knowledge-that, does not come for free. That is why, on the radically enactive approach, we preserve the intuition that perceiving is something one *does*, not something that merely happens.

## The normative constraints on perceptual knowledge

Can contentless perceptual knowledge be subject to the same normative standards as perceptual knowledge-that? We started to answer this question by noting that, if one has an ability A, there is a way one is supposed to behave, that is, one must achieve success by exercising A. Naturally, success is a matter of degree: one's perceptual experience can be improved by one's actions (conversely, a perceptual experience can be worsened if one repeatedly fails to interact with the environment). This is an important sense in which contentless perceptual knowledge is normative: it can be better or worse according to what one does.

A very similar view was offered by Kelly (2010), according to which it is a constitutive part of one's experience to act towards its improvement.<sup>5</sup> Kelly focuses on the phenomenon of shape constancy, arguing that changes in context (say, angle or distance variations between the observer and the object) are subject to normative demands. How well one perceives a square object, for instance, *constitutively* depends upon one's actions to get a better view of its squareness. That is not the mere empirical claim that we tend to obtain a better view of objects by moving around or squinting our eyes. Kelly, following Merleau-Ponty, claims that to perceive is (at least partially) to be “drawn towards a maximal grip on an object” (Kelly, 2010, p. 152).

There are two important consequences to be drawn here. First, if one completely fails to engage with a presented object, at the limit, one does not perceive it: “if I am totally lost in this respect [on how to improve my experience of the scene], therefore, I cannot count as seeing any particular thing at all” (Kelly, 2010, p. 152). Secondly, there are no “indifferent” perceptual states, such as mental pictures of the environment which are neither action-oriented nor action-orienting (or, as Kelly puts it, a “neutral Humean image”). If perceptual states were indifferent in this sense, then we would be unable to distinguish between a straightforward view of a trapezoidal object and a skewed view of a square object. But we can, mainly because our experiences are dynamical and normative: there are better and worse ways of perceiving something and we enact those ways.

Kelly does have the right idea when it comes to the dynamical character of perceptual experience and its constitutive dependence on our activities according to certain normative standards. There is, however, something remarkably counterintuitive in his proposal, namely: that one's perceptual experience comprehends, at the same level, objects with their properties (squares and squareness) and the drive to improve one's experience. If we describe our current experience, we certainly find objects and properties, but we do not find that drive, for the drive itself is not represented. That might seem to suggest that our perceptual experience is static, but this is obviously not the point I am making. My point is that we should distinguish between different levels of cognition, and that description (with objects and properties) is a more sophisticated level than contentless cognition. Present tense, first-personal description is misleading because it disrupts our ongoing engagement and calls for a higher level of attention, turning ourselves away from our environment and towards our own experience.

Kelly fails to account for that difference when he claims that “every experience of size or shape is *not just the perceptual representation of a property*. Rather, the experience already invokes a kind of normative self-referentiality” (Kelly, 2010, p. 149, my emphasis). Obviously, the problem is not

<sup>5</sup> I am very grateful to an anonymous referee for this suggestion.

with his claim that perceptual experience is normative. The problem lies instead in his smuggling of a representational (contentful) view, which entails a conflation between basic and complex levels of cognition. Consequently, it seems that the perception of possibilities of action and the perception of objects and properties carry the same epistemic weight. But, given that possibilities of action are more fundamental, it is clear that we do not see squares and squareness as showing up when we move in the same way that we experience possibilities of action. Both levels of cognition, however, are under the same normative idea of success. Specifically in the case of non-propositional perceptual knowledge, success is to be specified in terms of prolific engagement, whereas when it comes to perceptual knowledge-that, success is specified in terms of factivity.

An alternative approach was recently presented by Noë (2015), who claims that concepts are skills of access. According to Noë, in knowing-that perceptually one manifests the behavior of successfully accessing the environment in a conceptually articulated manner (also, we should add, by possessing these concepts, one could not easily fail to apply them). In connection with the point made above, both factivity and success are modes of accessing the environment.

However, we must be careful in following Noë here, for his intent is to articulate a pluralist view of concepts, according to which not all kinds of concepts are the ones that figure in judgments as attributions of properties to individuals and are subject to logical constraints. Among the different kinds of conceptual understanding, he distinguishes the “*perceptual understanding*, or what we might call *understanding concepts in the perceptual mode*” from the “*active mode*; understanding, that is, that can find expression, immediately, in what we do” (Noë, 2015, p. 3). To exemplify:

*The idea that understanding a concept is mastery of technique, a mastery that has multiple, distinct, context-sensitive ways of finding expression, helps here. One way to express understanding of [the concept of] dog is to talk and write about dogs. Another way is to be able to spot dogs on the basis of their appearance. Still another is to work or play comfortably with dogs. And the list goes on and on. We put our singular understanding of what dogs are to work in these different ways, and the understanding consists in the ability to do (more or less) all of that (Noë, 2015, p. 11).*

As long as we accept that what Noë calls perceptual and active modes can be, to a significant degree, contentless skills of access, we can accommodate his view, but this in turn gets us into a merely verbal dispute. Naturally, the radical enactivist eschews the notion that perception and action are necessarily conceptually articulated, where concepts are here understood as contents with possible logical relations among themselves. But the radically enactive approach is clearly consistent with

the notion of “Noë-concepts” as skills of access. I recommend that we stick to the traditional view on concepts in order to avoid confusion. Moreover, we construed the notions of knowing-where and knowing-when as abilities to locate and track things in an environment and, more importantly, of knowing-how as an ability to perform certain actions in accordance with environmental features. We therefore gave a precise sense to the idea of *skills of access* which is independent of talk about concepts in general and Noë-concepts in particular.

Now, still on this topic of normativity, the radical enactivist also appears to pose a problem to those who take perception to be a source of rationally grounded knowledge. A traditional view holds that rationality operates (a) in patterns of reasoning, which are reflexively accessible, and (b) in certain subpersonal cognitive modules, that is, structures that process information through the manipulation of representations and rules in order to make such information available to further uses by the system. As an example of the latter, consider Marr’s theory of vision (1982). According to Marr, three-dimensional visual perception is the outcome of a series of subpersonal steps consisting in the application of rules that enrich the raw stimulus received on the retina. Retinal stimulation is, on Marr’s account, just crude electromagnetic energy, so it is poor and ambiguous – by itself, it is insufficient to discriminate between objects, distances, shapes, etc. The brain then processes the received stimuli by applying certain rules to it. It is tempting to take the processes involved in transforming raw retinal stimulation into visual perception as patterns of reasoning, for just like inferences, they involve rules and representations. These processes, however, are not accessible from the first-person point of view, so one cannot control them – therefore, they are not strictly analogous to inferences. By any means, rationality is traditionally taken to be manifested in truth conductive or probabilistic processes which are essentially contentful. A contradiction looms.

Radically embodied views of cognition must make room for an alternative account of rationality, one that is inclusive enough to allow us to identify epistemic norms in the way an organism interacts with the environment through the exercise of its abilities. These abilities are broadly of two kinds: (i) ontogenetic abilities, i.e., abilities developed during the organism’s individual history, which include the abilities to perform specific cognitive tasks and to manipulate tools, as well as the problem-solving skills one learns and refines in the course of one’s life; and (ii) the abilities that have older phylogenetic roots, such as hard-wired abilities selected by evolution, which must be in place for the development of ontogenetic abilities. Clearly, reasoning is a very specific ability that some animals are able to perform, with a success rate varying between individuals of the same species and between different species as well – but there seems to be no independent reason to suppose that reasoning must be *the only* form of ability that is constitutive of rationality. If we opt for a broader conception of rationality, we can accommodate without contradiction the ideas that perception is usually a contentless process and that it is

rationally grounded, for it is the outcome of certain abilities, viz., sensorimotor abilities that enable one's successful, prolific engagement in an environment. Here is Hurley on the matter:

*Rationality reconceived in horizontally modular terms is substantively related to the environment. It does not depend only on internal procedures that mediate between input and output [...]. Rather, it depends on complex relationships between dedicated, world-involving layers that monitor and respond to specific aspects of the natural and social environment and of the neural network, and register feedback from responses (2001, p. 10).*

Therefore, combining a minimal internalism, according to which perception is a source of rationally grounded knowledge, with an embodied view of cognition is acceptable insofar as we do not equate rationality with the ability to perform inferences. Finally – and this relates to the point mentioned in §3 about niche building – rationality so conceived is directly correlated with the kind of changes we promote in our environment, changes that enable us to thrive. The more rational an organism is, the more successful it is in adapting and dealing with different circumstances that call for adjustments and refinements of its abilities and the development of new ones. Plausibly, *mutatis mutandis*, the same can be said about species and the development of phylogenetic abilities. Therefore, if a desideratum for any view about rationality is that humans in general are more rational than other animals (thus assuming a variation of degree), the radically enactive view clearly satisfies it.

## From perceiving to perceiving that

The analogy between the varieties of perceptual knowledge and the shared normative constraints makes it easy to answer whether different varieties of perceptual knowledge could be in conflict. Consider the particular cases an individual could be in: (i) she successfully achieves an end through the exercise of her sensorimotor abilities, say, tracking an approaching object by fixing her gaze and adjusting her position, and perceives that the object is approaching her; (ii) she successfully achieves the end of locating the approaching object, but fails to perceive that the object is approaching; (iii) she fails to exercise her sensorimotor abilities, but perceives that the object is approaching; (iv) she successfully exercises her sensorimotor abilities and locates the approaching ob-

ject, but she perceives that it is not an approaching object; finally, (v) she fails to locate the object and to perceive that it is approaching.

Case (i) is clearly a case of harmony, while case (v) exhibits a lack of perceptual knowledge altogether. Now, assuming that the radically enactive approach makes it possible to understand certain cases of cognitive achievement as basic, thereby being essential for more complex cases of cognition without necessitating them, it is clear that (ii) is not a conflicting case. Indeed, (ii) is similar to most of our interactions with the environment. By the same token, it follows that (iii) is not possible, at least not in normal cases of cognition.<sup>6</sup> Finally, it seems that case (iv) would represent the only genuine case of conflict. But by factivity and its analogue of success, (iv) is also not possible: it would rather represent a failure of accessing the environment, either at the non-propositional level or at the contentful level. In each situation, therefore, it would not be a conflict between the different varieties of knowledge, but either a case of *failing to achieve non-propositional perceptual knowledge* (thus reducing (iv) to (v)) or a case of *failing to achieve perceptual knowledge-that* (thus reducing (iv) to (ii)).

Although cases where there is a harmony between different varieties of perceptual knowledge, like (i) above, seem to be less exciting, they also raise interesting points. First, there is some leeway between the act of perceiving an object and articulating the perceived event in a propositional fashion. Imagine again someone locating and tracking an approaching object. One can just dodge the object. But one could also perceive *that it is a tennis ball* that went by, or *that it is a tennis ball from the other court* – and one could also (albeit unusually) perceive *that it is a Wilson tennis ball*, etc.

The second point concerns how one can go from non-propositional to propositional perceptual knowledge. One way to explore this transition is by what I call “disruptive occasions”. Disruptive occasions are challenges that demand a higher level of attention in order to complete a task which, in their absence, could be successfully done without raising or shifting one's attention. Conversational challenges to perceptual knowledge readily come to mind: imagine I am at my office and I have a lot of stuff scattered around on my table. I can navigate through it just fine, grab a cup of coffee over there and pick up my kindle amidst the books without even looking, etc. But if someone asks me whether the coffee is to the right of the kindle, or at the same level as the books, I would have to pay attention to what I usually do inattentively in order to come to know it perceptually in a contentful manner.

Two further things about disruptive occasions must be noted. First, that conversational challenges are not the default in our everyday life, we simply do not face challenges to our perceptual knowledge very often. Second, that not all dis-

<sup>6</sup> One could argue that (iii) is possible, as manifested in cases of akinetopsia, where individuals are unable to perceive motion. But even so, in cases like this, one would not perceive that the object *is approaching*, rather one would perceive that there is an object *o* at time *t* in position *p*, and then that *o* is at *t*<sub>1</sub> at *p*<sub>1</sub> and so on. That *o* is approaching the observer would be the result of an inference, not a content of perceptual knowledge.

ruptive occasions are conversational, there could be changes in the environment that would call for different actions and abilities. Imagine, for instance, that I successfully engage in the activity of writing a paper on my notebook. All goes well until I have to continue my work on a different computer (say, at the library) with a different keyboard design. After some mistakes I have to adapt and pay more attention when typing so I can know precisely where certain keys are. In this case, the view I'm advancing here says that, in the first stage, I'm perceiving my keyboard because I manifest a competent engagement with it, I know *how* to use it – for instance, how much pressure I have to put on the space bar for it to work – and *where* the keys are (I also know *when* they are, but there is no relevant temporal variation in this example). The change of keyboards is a disruptive occasion that calls for a different attitude: the same finger movements I'm used to performing while typing are not as successful as before because they do not produce the desired results. Certain changes in the environment, therefore, are disruptive occasions because they demand different activities and, at a limit, the performance of entirely different abilities in order to achieve the desired result. We could imagine an example where the new keyboard on which I have to type uses another alphabet, so I have to translate the keys. I would then perform a completely different activity than simply typing. In order to do this, at least at the beginning, I would have to *know that* this key stands for a specific letter by looking at it. In this case, knowing how to type simply is not enough to guarantee success, but I would still need to be able to locate and track the keys in order to type properly.

As we mentioned, there is a clear relation between knowing-that and attention, as it is plausibly assumed that knowing that something is the case demands paying attention to features of the environment that one would not usually notice. This can be taken to be one of the morals of the discussion about speckled hens, where one perceives a speckled hen, but, due to lack of attention, does not perceive the precise number of speckles it has. One *does not know that* the hen has a certain amount of speckles. This is compatible with our explanation of the transition from non-propositional to propositional perceptual knowledge: when one is engaged with the environment without paying attention to one's own actions and the achievement of the relevant ends, the available information is being accessed and managed by one's sensorimotor abilities. When a disruptive occasion occurs, attention is called for to modulate the flow of information in a contentful manner. How exactly this occurs is an empirical matter (and explaining it depends largely on a precise account of representational

content), and while there is one hypothesis available – that the flow of information is modulated into working memory, which is a rule-driven process (Clark, 2009) – we do not need to subscribe to any hypothesis at this juncture. The important thing here is that the function of attention is not merely to narrow the focus of an ongoing process, but to change it altogether by adding content.<sup>7</sup>

It is important to note that the threshold of attention changes from person to person, according to one's background knowledge and expertise. For instance, imagine a boxer performing a complex series of exercises with a punching ball, which is fixed to a board parallel to the ground and moves like a pendulum in many different directions. Imagine that the boxer has to punch the ball twice with her right hand in two different directions and twice with her left hand in two different directions, occasionally adding more punches to each hand. An experienced boxer would be able to easily locate the ball during its trajectory in accordance with the strength she uses, the point where she hits it at a certain angle and the time at which she hits it with each hand. This exercise can be successfully performed without any effort in identifying the relevant variables. However, something like a very unpredictable behavior by the ball would call for a higher level of attention, e.g., if it suddenly loses some air, but not enough to become entirely flat. A disruptive occasion like that would prevent the experienced boxer from successfully attaining the relevant goal effortlessly, and, at least initially, would demand of her that she *knows that* the ball, being at a certain position after being hit with that much strength, and so on, would go this way or that. The story is completely different if we imagine a novice trying to do the same exercise. If one lacks the muscular memory that enables a quasi-automated performance, it is crucial to pay attention in identifying the relevant variables, and that can only be done by consciously following a rule more or less like “you have to hit here, at this angle, when the ball is right here, with this much strength, so it...”. For the novice, the threshold of attention is lower than for the expert, and basically every movement of the ball demands attention to perform the next step. Note, moreover, that in order to achieve this knowledge-that, she *still* has to adjust her body in exercising her abilities and pay attention to her causal interactions with the environment. That explains why perceptually knowing-that is a more complex attitude, in the sense that it is dependent upon non-propositional varieties of perceptual knowledge. We need to highlight that, when one is engaged in an activity, without conscious thoughts, motives or plans about what one is doing and what one must do, the activity still qualifies as cognitive and is open to evaluation.

<sup>7</sup> Dreyfus's readings of Heidegger seem to contain a very similar view. For instance, Dreyfus (1991) argues that there is no real distance between individuals in non-disruptive occasions (or as he calls it, in absorbed coping) and the world. In one out of the many ways of exploring this position, Dreyfus takes absorbed coping to be entirely nonminded, for “expert coping [is] direct and unreflective” and this is the “same as nonconceptual and nonminded” (Dreyfus, 2007, p. 355), which thus explains why individuals are not distanced from the environment. This would mark a difference between our accounts, for I take engagement in non-disruptive occasions to be *minded* but not contentful.

## Against tradition?

The radical enactivist denies that cognition necessarily involves content, and we advanced this position by appeal to embodied abilities that one could not easily fail to exercise. This means that perceptual knowledge is primarily non-propositional, so our view does oppose a tradition that takes propositional perceptual knowledge to be the only kind of perceptual knowledge, or at least the only kind relevant to epistemology. That is, of course, wrong, but we should ask ourselves why perceptual knowledge—that has received too much emphasis. By doing so, we can grant that some inquiries into the nature of knowledge—that are accurate – we indeed relied on them when highlighting the shared aspects of the different varieties of perceptual knowledge – even as they fail to acknowledge that perceptual knowledge—that is not a case of basic cognition.

Epistemologists tend to suppose that the scope of knowledge—that is broader than it actually is because of a Cartesian methodological inheritance. Let us unravel that: just like in Descartes's *Meditations*, epistemologists traditionally begin their inquiries into the nature of knowledge by imagining a setting which is both artificial and static, in which an individual, away from the hassle of everyday life, is in a certain epistemological relation with a given object. This choice of setting is methodological because it is intended to clear the noise produced by non-cognitive relations between the individual and her environment. But it ends up clearing away more than that. Of course, since at least Gettier, the dialectics of epistemological inquiries consisted basically in presenting an intuitive theory that covers paradigmatic cases, describing the epistemic principles underlying the theory, submitting them to counterexamples, adjusting the theory, testing it with new counterexamples and so on. But one can still find examples with an aura of the traditional approach in post-Gettier literature. Here is an example of a case described in a very artificial and static way, thus ignoring the role played by action in perception. I apologize in advance for the painfully long quote:

*You are undergoing an operation for an aneurysm in your occipital lobe. The surgeon wants feedback during the operation as to the effects of the procedure on the functioning of your visual cortex. He reduces all significant discomfort with local anaesthetic while he opens your skull. He then darkens the operating theater, takes off your blindfold, and applies electrical stimulation to a well-chosen point on your visual cortex. As a result, you hallucinate dimly illuminated spotlights in a ceiling. (You hallucinate lights on in a ceiling. As yet, you are not at all aware of the lights or the ceiling of the operating theater.) As it happens, there really are spotlights in the ceiling at precisely the places where you hallucinate lights. However, these real lights are turned off, so that the operating theater is too dark to really see anything. [...]*

*[The surgeon] turns on the spotlights in the ceiling, leaving them dim enough so that you notice no difference. You are now having what some call a "veridical hallucination". You are still having a hallucination for you are not yet seeing the lights on in the ceiling [...] Yet your hallucination is veridical or in a certain way true to the scene before you; there are indeed dim lights on in a ceiling in front of you.*

*In the third stage of the experiment the surgeon stops stimulating your brain. You now genuinely see the dimly lit spotlights in the ceiling. From your vantage point there on the operating table these dim lights are indistinguishable from the dim lights you were hallucinating (Johnston, 2004, p. 122).*

Johnston's point here is to provide support to the premise of the argument from hallucination, according to which hallucinatory episodes enjoy the same epistemic qualities as genuine perceptual states. Therefore, according to Johnston, perception and hallucination are not epistemically different in fundamental aspects. Although there are other ways to counter his argument (for instance, see Neta, 2008), we can go so far as to grant him the truth of the following conditional: *in such conditions*, perception and hallucination are very much alike. But no argument has been provided to show that these conditions are sufficiently similar to everyday interactions with our environment, in which our actions are not so tightly constrained. In particular, the ingenuity of the setting invites us to think that it is a very unique kind of case, a case in which someone is perceiving lights in the ceiling statically, unable to exercise her perceptual abilities correctly. The patient cannot move her head in order to distinguish the hallucination of lights (which would plausibly follow her movements) from the actual presence of the lights (which would stay fixed at certain points). If she could do so, on the other hand, and the surgeon were to keep track of her movements and generate new hallucinations in order to guarantee that her putative perceptual states were indeed hallucinatory, then this new scenario would not be much different from a traditional skeptical one, where mistakes are inevitable. It seems that Johnston's case can only work if we suppose that action is inessential to a full blown perceptual state. That, I think, points precisely in the opposite direction of what Johnston intends: a perceptual state deprived of action is impoverished, and it could be very much like a veridical hallucination. It is hard to see, however, what a case like that shows about perceptual states more generally.

## Concluding remarks

I intended to offer a philosophically sound account of perceptual knowledge as a case of contentless basic mind, viz., an account of perception in terms of the exercise of embodied

abilities. The non-propositional varieties of perceptual knowledge share aspects and normative constraints with perceptual knowledge-that, thus explaining why they fall within the same broader category of perceptual knowledge. There are further questions for the view advanced here: what about cases in which an individual is systematically prevented from exercising her abilities, such as skeptical scenarios? In these cases, one not only fails to know, but fails to be rational. Is this really counterintuitive? Is this consequence acceptable? These are questions for the future.

## References

- ADAMS, F.; AIZAWA, K. 2001. The Bounds of Cognition. *Philosophical Psychology* **14**:43-64. <https://doi.org/10.1080/09515080120033571>
- ADAMS, F.; AIZAWA, K. 2010. Defending the Bounds of Cognition. In: R. MENARY (ed.), *The Extended Mind*. Cambridge, MIT Press, p. 67-80. <https://doi.org/10.7551/mitpress/9780262014038.003.0004>
- CHEMERO, A. 2009. *Radical Embodied Cognitive Science*. Cambridge, The MIT Press, 269 p.
- CLARK, A. 2009. Spreading the Joy? Why the Machinery of Consciousness Is (Probably) Still in the Head. *Mind*, **472**(118):964-93. <https://doi.org/10.1093/mind/fzp110>
- CLARK, A. 1997. *Being There*. Cambridge, MIT Press, 292 p.
- DREYFUS, H. 1991. *Being-in-the-World: A Commentary on Heidegger's Being and Time, Division I*. Cambridge, MIT Press, 384 p.
- DREYFUS, H. 2007. The Return of the Myth of the Mental. *Inquiry*, **50**(4):352-365. <https://doi.org/10.1080/00201740701489245>
- GETTIER, E. 1963. Is Justified True Belief Knowledge? *Analysis*, **23**(6):121-123. <https://doi.org/10.1093/analys/23.6.121>
- GIBSON, J.J. 2015. *The Ecological Approach to Visual Perception*. New York, Psychology Press, 316 p.
- HURLEY, S. 2001. Perception and Action: Alternative Views. *Synthese*, **129**:3-40. <https://doi.org/10.1023/A:1012643006930>
- HUTTO, D.D.; MYIN, E. 2013. *Radicalizing Enactivism: Basic Minds without Content*. Cambridge, MIT Press, 328 p.
- JOHNSTON, M. 2004. The Obscure Object of Hallucination. *Philosophical Studies*, **120**:113-183. <https://doi.org/10.1023/B:PHIL.0000033753.64202.21>
- KELLY, S.D. 2010. The Normative Nature of Perceptual Experience. In: B. NANAY (ed.), *Perceiving the World*. Oxford, Oxford University Press, p. 146-159. <https://doi.org/10.1093/acprof:oso/9780195386196.003.0007>
- MARR, D. 1982. *Vision*. San Francisco, W.H. Freeman, 403 p.
- MILLIKAN, R. 1995. Pushmi-Pullyu Representations. *Philosophical Perspectives*, **9**:185-200. <https://doi.org/10.2307/2214217>
- MILLAR, A. 2011. How Visual Perception Yields Reason for Belief. *Philosophical Issues*, **21**(The Epistemology of Perception):332-351.
- NETA, R. 2008. In Defense of Disjunctivism. In: A. HADDOCK; F. MCPHERSON (eds.), *Disjunctivism: Perception, Action and Knowledge*. Oxford, Oxford University Press, p. 311-329.
- NOË, A. 2004. *Action in Perception*. Cambridge, MIT Press, 277 p.
- NOË, A. 2015. Concept Pluralism, Direct Perception, and the Fragility of Presence. In: T.K. METZINGER; J.M. WINDT (eds.), *Open MIND*. Frankfurt am Main, MIND Group,
- NOË, A. 2012. *Varieties of Presence*. Cambridge, Harvard University Press, 174 p. <https://doi.org/10.4159/harvard.9780674063013>
- PRINZ, J. 2009. Is Consciousness Embodied. In: P. ROBBINS; M. AYDEDE (eds.), *The Cambridge Handbook of Situated Cognition*. Cambridge, Cambridge University Press, p. 419-436 [https://doi.org/10.5840/jpr\\_2009\\_2](https://doi.org/10.5840/jpr_2009_2)
- PRITCHARD, D. 2009. Safety-Based Epistemology: Whither Now? *Journal of Philosophical Research*, **34**:33-45.
- PRITCHARD, D. 2005. *Epistemic Luck*. Oxford, Clarendon Press, 290 p. <https://doi.org/10.1093/019928038X.001.0001>
- PRITCHARD, D. 2012. *Epistemological Disjunctivism*. Oxford, Oxford University Press, 167 p. <https://doi.org/10.1093/acprof:oso/9780199557912.001.0001>
- RAMSEY, W.M. 2015. Untangling Two Questions about Mental Representation. *New Ideas in Psychology*, **40**:1-10.
- SOSA, E. 1999. How to Defeat Opposition to Moore. *Philosophical Perspectives*, **13**:141-154. <https://doi.org/10.1111/0029-4624.33.s13.7>
- WILLIAMSON, T. 2000. *Knowledge and Its Limits*. Oxford, Oxford University Press, 340 p.

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