Content, Mental Representation and Intentionality: Challenging the Revolutionary Character of Radical Enactivism

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Criticisms and rejections of representationalism are increasingly popular in 4E cognitive science, and especially in radical enactivism. But by overfocusing our attention on the debate between radical enactivism and classical representationalism, we might miss the woods for the trees, in at least two respects: first, by neglecting the relevance of other theoretical alternatives about representationalism in cognitive science; and second by not seeing how much REC and classical representationalism are in agreement concerning basic and problematic issues dealing with mental content and intentionality. In order to expand and exemplify these ideas, this paper presents two heterodox positions on intentionality and on the relations between content and representation. Special attention is paid to the way REC is rejecting these positions: I argue that this rejection reveals common assumptions with classical representationalism, but also undermines the coherence of REC's conception of intentionality.

Keywords: Content, intentionality, mental representation, radical enactivism, 4E cognition.

Introduction

4E—embodied, embedded, extended and enactive—approaches to cognition are fashionable these days (Newen, De Bruin and Gallagher 2018). As their names suggest, these approaches insist on the constitutive importance for cognition of its embodied, embedded, enactive and extended dimensions. By *embodiement*, one means the bodily and organismic realization of cognition, much broader than its neural basis. By *embeddedness,* one means the fact cognitive processes are situated

in a biological and cultural environment that supports and constrains the way they are acquired and exercised. By *enactive*, one points to the fact perception and action are not separated processes: what one does and can do influences the way one perceptually experiences the world.[1] Perceiving is a way to act (Noë 2004). By *extended*, one argues that there are some circumstances in which cognitive processes may be literally realized in some of the environmental structures embodied agents are reliably coupled with. All in all, *cognition is not (only) in the head; it is not (only) a matter of mental representations; it unfolds (or is "enacted") in the coupling relations or interactions between embodied and living organisms and their social, cultural, linguistic, technological and biological environments* (Clark 1997; Chemero 2009; Hutto and Myin 2013). Notably inspired by original works in robotics, linguistics, ecological psychology, and anthropology, but also by the rediscovery of phenomenology and pragmatism, 4E approaches criticize the internalist, representationalist, individualist, formalist and reductionist tendencies of the dominant paradigm in cognitive science (computationalism).

The theoretical unity of 4E cognition should not be taken for granted. On the contrary. A typical way to classify 4E views of cognition is to consider their respective attitudes towards the issue of representation and content. This issue concerns the extent to which cognitive processes involve the manufacture and use of naturally contentful intracranial states. Some of 4E theories are emphatically *non-representationalist*: they deny the existence—and the explanatory necessity of positing the existence—of mental representations understood as naturally contentful intracranial states. These theories do not only claim that the *traditional* notion of internal representation is superfluous; they claim that the explanatory appeal to *any* kind of natural content-involving intracranial structure is unnecessary and even ontologically unjustified. However, they do not deny the existence and explanatory relevance of linguistic or propositional content which is derived from linguistic practices. Other theories will rather endorse occasional non-representationalism: some basic or minor cognitive tasks do not require representationalist explanations, but other, more complex and evolved tasks surely require them (cf. for instance Andy Clark's (1997) *representation-hungry tasks*). But these representations do not need to be static, complete, action-neutral or symbolic: they can be action-oriented, context-dependent, non-linguaformal, partial, modal, and so on.

Amongst these burgeoning theories, I will pay here special attention to *radical enactivism* and its rejection of representationalism. Since its inception, radical enactivism (or REC, for radical enactive cognition) sees itself as a revolutionary project in cognitive science, because of the

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[1] It is also possible to understand "enactive" in a broader sense, encompassing the necessarily living and embodied character of cognition, as the works of Francisco Varela, Shaun Gallagher or Ezequiel Di Paolo show.

radical non-representationalist theorization it would propose of the 4E dimensions of cognition. More exactly, REC would be the equivalent, in cognitive science, of the revolutionary changes Einstein achieved for matter or Galileo for movement (Hutto and Myin 2017: preface and 46–47). Not less. Nevertheless, the problem with revolutionary claims in science is twofold. Firstly, they are neither necessary nor sufficient for bringing a real revolution. Claiming that you do a revolution does not entail by itself the occurrence of a revolution. Recent works have indeed begun to question the real revolutionary character of enactivism (Wheeler 2017). More broadly, the history of science is full of examples where thinkers who considered themselves as *orthodox* achieved what the posterity understood as scientific revolutions (take for example Copernicus), and full of examples of self-proclaimed revolutionary theories or sciences that have been finally classified as pseudo-sciences or scientific failures (see mesmerism or phrenology). Secondly, revolutionary claims like Hutto and Myin's REC give the impression that the situation in cognitive science is clear: there are only two opposing alternatives (representationalism or content-involving cognitive science (CIC), as REC calls it, and REC), as if the opposition was perfectly real, and as if there were no other contenders in the field beyond mere variations around or between CIC and REC.

In what follows, I will notably show that REC and representationalism (or content-involving cognitive science (CIC), as REC calls it) are sharing important assumptions. It would be misleading to believe that since REC and CIC share these assumptions, these assumptions must be central and necessary for any kind of cognitive science. On the contrary: I will present positions that reject these assumptions. These positions have a *heuristic* value: assessing and defending their *scientific* value will not be my aim here. The assumptions which will be under question concern the relations between mental representation and mental content, and the status of intentionality in cognitive science. Contentless representationalism is a rejection of the identity between representation and content. Non-intentionalism is a rejection of the reality of intentionality as a basic, natural and intrinsic property of object-directedness. I will argue that contentless representationalism and non-intentionalism are raising challenges for REC and its revolutionary character at different levels: (1) contentless representationalism and non-intentionalism are alternative positions in cognitive science that are not mere variations around REC or CIC; (2) REC and CIC are rejecting contentless representationalism and non-intentionalism by sharing common assumptions about intentionality and about the equivalence between representation and content; (3) REC's rejection of contentless representationalism is a threat to the intelligibility of its very own "nonrepresentational understanding of intentionality" (Hutto and Myin 2017: 15).

Section 1 presents contentless representationalism and the way REC rejects it by sharing important assumptions with CIC. Section 2 is

about REC's intentionalism and its ambiguities. I will notably discuss a reply made by Hutto and Myin (2017) to some objections expressed by Jean-Michel Roy (2015).

1. *Contentless representationalism and deflationism on mental representations*

Let us define representationalism (or CIC) as a commitment to the existence and theoretical relevance of mental representations, understood as material and intracranial entities, naturally endowed with content. But what is content? Classically, content is defined by truth conditions or satisfaction conditions. It may also be identified with abstract semantic entities like meanings, Fregean senses, possible worlds, modes of presentations, intensions, or propositions. These definitions are not identical, of course. But they all share one common methodological assumption: *the content of mental representations is defined by properties which also figure in the definition of the content of public or linguistic representations*, namely *meaning, reference, truth-conditions, or satisfaction conditions*. The only difference being that unlike the content of public/linguistic representations, the content of mental representations is natural, and thus fixed by natural properties and relations. Daniel Dennett clearly expressed the basic prejudice at the core of this standard view of the content of mental representations:

> Whatever *mental* representations are, they must be understood by analogy to *non*mental representations, such as words, sentences, maps, graphs, pictures, charts, statues, telegrams, etc. (Dennett 1978: 189, author's emphasis)

As stipulated theoretical entities, mental representations are nevertheless modeled on a kind of ordinary public representation: linguistic representations.

This approach to mental content has been discussed for some time now. Examining the way this standard view has been questioned by various philosophers will lead us to a basic problem that also concerns the eliminativism about content and mental representation developed by REC.

From his classical 1989 book *Meaning and Mental Representation* to more recent papers,[2] Robert Cummins has argued that there is no need to suppose that "representation" and "content", in cognitive science, should have the same explanatory role and the same properties that these terms have in folk psychology. "Content", for instance, should not be confused with meaning (the latter one being a property of natural languages), defined in terms of truth conditions or satisfaction conditions, or associated with reference. Separated from these linguistic phenomena, the problem of naturalizing content is not the problem of

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[2] See especially the paper co-authored with Martin Roth "Meaning and content in cognitive science", reprinted in Cummins (2010: chap. 11).

finding and defining a natural semantic *relation* between intracranial states and environmental states of affairs. Content might just be identified with functional or inferential role. It is therefore a *petitio principii* to assume that the content of mental representations—whatever it is—*must* have properties similar to the ones common-sense associates with content, like for instance meaning or truth conditions. As Stephen Stich (1983) noted a long time ago, content ascriptions are irreducibly vague, context-sensitive, and observer relative. For these reasons, content *as it is ascribed in folk psychology* may have no place in scientific psychology. But that does not mean that the concept of "content" has no role to play in cognitive science (Stich 2009: 204), since it is invoked in successful theories (Stich 1996: 199). The place of "content" in cognitive science can be secured not by naturalizing it, but by defining what a "successful" theory is, not only from internal features, but also external ones (sociological success, entrenched habits of problem-solving,…). According to Cummins and Stich, the content that is invoked in cognitive science must be kept apart from meaning, truth-conditionality, and more broadly linguistic content. If we follow this strategy of emancipating content in cognitive science from folk or linguistic accounts of content, it is a mistake to argue for the elimination of mental representations from the fact that the content associated to representational entities by the common-sense conception of "mental representation" has no scientific reality or cannot be naturalized.

We find here a classical problem for any eliminativist argument that starts from a classical common-sense characterization of the property to be eliminated. As Steven Stich and Stephen Laurence say:

> Those arguments typically begin by describing some feature or cluster of features that are important or essential for intentional states, *on the commonsense account of these states*. The arguments then try to show that respectable scientific theories cannot accommodate states with the features in question. (Stich and Laurence, in Stich 1996: 178, emphasis mine)

Eliminativist strategies generally start from a descriptivist model of reference, according to which the reference of a term is determined by the cluster of descriptions associated with this term, for instance descriptions coming from commonsense. The main assumption of a descriptive theory of reference is that if a theoretical concept *C* refers, it refers to whatever is picked out by the description associated with it in the theory (Devitt 2009: 46). If nothing satisfies that description, there are good reasons to think that the concept does not refer to anything. However, things are different if one endorses a causal theory of reference: a concept might refer to something whose properties are not the ones mentioned by the intension of the concept, especially if this is a scientific concept whose intension is initially defined from commonsense. The meaning of scientific terms may not be fixed by their intension; it may be determined by the nature of their referents, as Kripke and Putnam taught us a long time ago. A challenge appears for any eliminativist position, including REC's eliminativism on content and

mental representation: what are the conditions in virtue of which one can say that some entity or property (here: mental representation) does not exist, rather than say that it exists, although it is very different from what one thought and thinks about it? What are the conditions in virtue of which some term does not refer to anything, rather than referring to something that is very different from what the descriptions associated with it prescribe?

This problem should not only be faced by eliminativists on mental content who assume that mental content is *necessarily* truth-conditional, propositional or conceptual. REC's acceptance of the fact mental content does not necessarily require truth-conditionality or intensionality must not hide its commitment to a more basic assumption whose refusal is sufficient for blocking REC's eliminativist strategy: the assumption that mental representations necessarily have contents (whatever the properties associated with content) and referential properties. Refusing to endorse *one* specific classical conception of content (the conception according to which mental content is necessarily propositional or truth-conditional) does not mean one is not under the grip of a more basic conception of content whose parochial and pre-theoretical character may also be questioned.

Let us call [CONTENT-TRUTH] the claim that natural mental content is necessarily truth conditional. This claim may be endorsed by both proponents of natural mental content and eliminativists about natural mental content. As said before, Cummins and Stich have convincingly argued that [CONTENT-TRUTH] is not the only account of mental content which is available in cognitive science. This non-necessity is already sufficient for criticizing eliminativist strategies on mental content which assume that mental content does not exist because there are no truth conditions in intracranial mental structures or in perceptual experience. Failure to naturalize (so that elimination follows) truth-conditional or meaningful content does not imply failure to naturalize (and thus the elimination of) another kind of content. REC also refuses that [CONTENT-TRUTH] is the only existing account of content in cognitive science. More modest accounts of content have been proposed by philosophers such as Tyler Burge, who identifies content with accuracy or veridicality conditions (Burge 2010). REC is also targeted at these accounts. Since their first book, Hutto and Myin argue that neither informational theories nor teleosemantics are able to provide a satisfactory non-intentional explanation of the emergence of semantic properties (be they a matter of truth conditions, satisfaction conditions, accuracy conditions; be they conceptual or non-conceptual; be they propositional or non-propositional): either these theories beg the question by already coming with intentional notions, or they merely deliver covariation and indication, which are not sufficient for giving semantic or representational content. These failures to naturalize content (what REC also calls "The hard problem of content") entail that representationalism has no foundations in the naturalistic ontology proponents of

representationalism generally assume. Unable to be integrated in the naturalistic ontology it claims to be a part of, the representationalist program would be "plagued with toxic debt, financed by loans it cannot pay back" (Hutto and Myin 2013: 160). Since mental content has no place in a naturalistic ontology, there are good reasons to think it does not exist as an entity conveyed or produced by natural processes, including subpersonal and intracranial ones. In addition, non-representational means and models are already available and plausible for explaining basic cognitive phenomena. And, according to REC, when it comes to contentful cognition (thoughts, imaginings or reasonings), contents are not natural or subpersonal contents: they derive from the integration of cognitive agents in socio-cultural practices.

Hutto and Myin claim that respectable naturalistic theories cannot accommodate naturally contentful cognitive states (mental representations), so that these states should be theoretically eliminated. REC assumes here—as a *petitio principii*—what I will call here [REPRESENTATION-CONTENT-REFERENCE]: the claim that mental representations *necessarily* have content and entertain semantic relations with their referents.

In order to clearly define the pivotal role of this (resistible) assumption by REC, let us consider here a reconstruction of Hutto and Myin's strategy in their 2013 book; this strategy has not changed in their 2017 book:

P1. In the representationalist ontology, the subpersonal and intracranial phenomena named "mental representations" naturally (or intrinsically) have contents (truth-conditions, satisfaction-conditions, or accuracy conditions) and (by implication) reference[3];

P2. There is no natural (or intrinsic) content at the level of subpersonal and intracranial phenomena;

C. Subpersonal and intracranial mental representations, as they are conceived by the representationalist ontology, do not exist.

P2 is defended from an examination of the failures of projects of naturalizing mental content. A reply from representationalists may consist in a criticism of P2. Representationalists can argue that content has been naturalized (see Miłkowski 2015), or argue that the fact it has not been naturaliz*ed* yet does not entail it is not naturaliz*able* (and thus existing).

Even if P2 is correct ("there is no natural content at the level of intracranial and subpersonal phenomena"), the proponents of representationalism may also object to the general argument by refusing P1 as it is stated by REC. P1 is the description of an alleged consen-

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[3] I here leave aside the theoretical possibility of representationalist theories that would hold that mental representations do not have content, but nevertheless have reference. For the all representationalist and non-representationalist theories I consider here, content determines reference. Content and reference stand or fall together.

sus: in the representationalist community, everyone would assume that mental representations are endowed with natural content. This corresponds to [REPRESENTATION-CONTENT-REFERENCE]. Even if REC questions the existence of mental content and, therefore, of mental representations, it does not disagree with this characterization of mental representations: they (are supposed to) have content. "Content" is part of the intension putatively fixing the reference of the concept "mental representation". Representationalists can argue that mental representations never have natural or intrinsic content (in this case they would agree with REC: mental content derives from social and cultural practices), but they can also argue that mental representations do not have content *at all*, so that P2 has no consequences at all on the existence of mental representations. What P1 describes is a situation in which commonsense provides the intension from which mental representations in cognitive science should be conceived: they have content and referential properties, just like sentences, pictures or diagrams. But if one denies that mental representations have content, P2 has no consequence at all for the existence of mental representations (or for the reference of the term "mental representation").

But are there representationalists that *seriously* deny P1 and thus reject [REPRESENTATION-CONTENT-REFERENCE]? Of course there are. Outside of the context of cognitive science, eminent philosophers such as Nelson Goodman (1968) or Dan Lloyd (2003) have long questioned the idea that the property of representation is a relational property, and not (for instance) a monadic property. Let us consider closely the case of Noam Chomsky.[4] For a long time now, Chomsky is convinced that folk and philosophical notions like "content", "intentionality" and "reference" have no place at all in the naturalistic framework dedicated to the understanding of cognitive faculties (Chomsky 2000: 21–23). This is of course much more radical than asserting, like Cummins, that "content", in cognitive science, has a different sense than "content" in folk psychology and semantics. As Chomsky writes:

> The central problem that troubles me is this. I do not know of any notion of 'representational content' that is clear enough to be invoked in accounts of how internal computational systems enter into the life of the organism. And to the extent that I can grasp what is intended, it seems to be very questionable that it points to a profitable path to pursue. (Chomsky 2003: 274)

Nevertheless, for Chomsky, the concept "mental representation" should be retained in cognitive science, but "content", "reference" or "intentionality" have to be purged from its intension. That is, Chomsky emphatically refuses [REPRESENTATION-CONTENT-REFERENCE]. Mental representations are individuated from their role in computational processing. The functional roles of mental representations are here related to properties that have nothing to do with content, ref-

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[4] In cognitive science, Ray Jackendoff (1987) would have been another possible example.

erence, or intentionality. Their important properties are formal or syntactic. These representations do not mean or represent anything; defining their reference is of no scientific interest. One of the reasons of Chomsky's eliminativism on reference, content and intentionality is related to the difficulties of *individuating* the objects of reference, be they actual or purported (Chomsky 2003: 273). The use of intentional expressions such as "refers to" or "means" can be preserved for informal presentations of a computational theory, but intentional expressions play no role in the computational theory itself. The computational theory makes use of the concept "representation", but this concept is not about any relational entity. This does not exclude the introduction of a technical notion of reference in order to explain the syntax of mental representations (Chomsky 2000: 202 n.6):

> The internalist study of language also speaks of "representations" of various kinds, including phonetic and semantic representations at the "interface" with other systems. But here too we need not ponder what is represented, seeking some objective construction from sounds or things. (…) Accessed by performance systems, the internal representations of language enter into interpretation, thought, and action, *but there is no reason to seek any other relation to the world, as might be suggested by a well-known philosophical tradition and inappropriate analogies from informal usage*. (Chomsky 1995: 53, my emphasis).

"Informal usage", here, means the very widespread tendency to embrace a linguistic model of mental representations, assuming they have semantic content or reference, like daily linguistic products. Chomsky's "contentless representations", as we may call them, entertain functional relations with external phenomena: they occur when and only when the organism interacts or deals with these external phenomena. In this sense, a "number-representation" is a representation of a different functional type than a "face-representation", but is not to be defined as a representation *of* an external item (Chomsky 1995: 52).

But what would be the utility and the plausibility of this notion of "contentless representation" for cognitive science? A double answer might be proposed to this question, one answer justifying why the notion of "contentless representations" might deserve to be used for naming some specific processes, the other one justifying how it is fruitful to see those representational processes as being *contentless*. Firstly, using the notion of "representation" for labeling a subpersonal process is here a way to underline the fact this process has specific cognitive properties. This subpersonal process functionally contributes to the realization of the cognitive abilities of the system (or person) under study, but not only. Indeed, these abilities are those which are exercised when the system deals with environmental objects, properties or states of affairs in tasks such as perceiving, memorizing, or understanding. Representation-talk is a way for the theorist to individuate and classify these cognitive processes, underlining their functional relations with external objects. Labeling a structure as a "face-representation", "phoneme-

representation", or "space-representation" is underlining the fact this
structure plays a role in the relations the cognitive system entertains
with faces, phonemes or space. Nevertheless, since individuation is not
definition, that does not entail these processes entertain intrinsic se-
mantic relations or reference with these objects, or that they specify
them in virtue of some content. The relations between these structures
called "representations" and external objects are not semantic or con-
tentful, but they are more than mere causal relations, because these
structures are theoretically individuated as playing a key functional
role in the cognitive processing in relation with these objects and prop-
erties. Still, the definition of the formal and syntactical properties of
those representations is sufficient for studying their causal role in cog-
nitive processing. Secondly, by considering these representations as
being "contentless", one does not introduce into the theory notions (as
"content", "reference" or "truth conditions") first proper to philosophy of
language, and which immediately raise the thorny issues of naturaliza-
tion and causal efficiency. How could natural facts generate semantic
or contentful properties? How could semantic or contentful properties
be semantically efficient? Those vexed issues disappear for those who
dispense with content. Content-ascription can play some auxiliary role
in the informal presentation of the computational theory, but not with-
in the computational model itself.

As said in the introduction, my aim here is not to assess or to de-
fend the scientific plausibility of this marginal position in cognitive
science (see Rey 2003; Jacob 2010; and Egan 2003 for some existing
assessments).[5] I prefer to focus on the arguments in virtue of which
this position is (unsurprisingly) rejected by both REC and its classical
opponent.

Facing the suggestion of divorcing mental representations from con-
tent, intentionality and reference, *both* classical representationalists
and REC might reply that "contentless representation" is an oxymoron.
And, actually, this is REC's answer (see Hutto and Myin 2013: 84): if
something does not have content or reference, why persisting in calling

[5] More broadly, I do not assume here that there is or must be *one* right (techni-
cal, scientifically respectable) way to conceive content and mental representation
in cognitive science. This realistic assumption might be shared by many represen-
tationalists (who believe in the reality of mental representations) and anti-repr-
esentationalists (who consider that there are *facts of the matter* in virtue of which
there are no mental representations); but it is optional. My instrumentalist and more
precisely pragmatic conception of inquiry in cognitive science leads me to think that
it is only from local, well-identified cases of cognitive explanations that we can raise
questions about the (local) usefulness or acceptability of "representation", "content"
or "non-representation" talk. This important issue is quite orthogonal to the issue of
knowing whether REC and representationalism share common elements, or whether
REC is a coherent position in itself. Still, it informs the pluralistic perspective I
take in this paper when I argue that we should not believe it is *necessary* to use
folk concepts of "content" and "representation" in cognitive science. I thank one
anonymous referee for having invited me to clarify this point.

it "representation"? This reply, at least made by REC, assumes that representation and content stand and fall together. This assumption may be disputed: why should cognitive scientists absolutely respect common sense conceptions of "representation"? Take terms such as *matter*, *mass*, *life* or *length*, as they are defined and used in contemporary science. That is, consider them as *scientific concepts*. Matter, in contemporary physics, is not necessarily impenetrable and solid. Mass is interchangeable with energy. Life does not necessarily require replication or reproduction. Length is a function of relative velocity. Are these definitions invalid or unacceptable on the ground that they do not match with ordinary or commonsense understanding of these terms? Is there any obligation for scientists to forge new terms because of the confusions these new uses of entrenched terms can generate? Is there any *naturalist* philosopher that wants to subject theories in chemistry, biology or physics to the authority of ordinary language? Is there any naturalist philosopher that would argue that psychology and cognitive science—unlike natural sciences—must be subjected to this authority, and that will thus reject the possibility there might be contentless mental representations? This is a first set of questions that may follow from REC's dismissal of contentless representationalism.

Pursuing my project of focusing on REC's treatment of contentless representationalism, let me note another point (and problem). Hutto and Myin sometimes reduce Chomsky's position to the following claim: since "mental representation" does not pick out any contentful or referential state, it picks out *any* property of brains that we have not exactly defined yet. "Mental representation" would be a mere label that picks out whatever, in the end, best characterizes what does the work in cognition. The obvious reply REC proposes to this definition is that, in the end, mental representations would be everywhere, the concept being applied to any kind of mediating state (Hutto and Myin 2019: 8).

Hutto and Myin's objection is instructive: they are warning non-orthodox representationalists who want to give up content (as Chomsky) that their representationalist ontology is under the threat of pan-representationalism. Mental representations would be everywhere, in any mediating (and contentless) physical state. Hutto and Myin's objection assumes that *content is the only good criterion for preserving an intelligible form of representationalism*. But, of course, because of content, this form of representationalism would then face the "Hard Problem of Content" and hence the prospects of elimination. Put otherwise, Hutto and Myin invite all representationalists to endorse a specific view of mental representation, so that eliminativism about content can automatically generate eliminativism on mental representation. The non-orthodox, deflationary contentless representationalist would be trapped in a dilemma, between the hard problem of content and pan-representationalism:

The deflationist's dilemma is this: either retain mental contents and their

> troublesome properties or let go of mental contents and offer a theory of mental representation that is indistinguishable from non-representational-ist accounts. (Hutto and Myin 2019: 22)

The upshot of this strategy is twofold: on the one hand, in order to criticize representationalism, REC is forced to endorse a basic tenet of classical representationalism (mental representations have content and reference), and might more broadly share with classical representationalism an occasional reference to common sense as a landmark in the characterization of the acceptable and unacceptable posits of cognitive science (indeed, as seen above, according to REC there is no representation without content, and "contentless representation" is an oxymoron). On the other hand, by addressing a dilemma to deflationists, one can wonder whether Hutto and Myin are not cutting off the branch they are sitting on regarding their very own conception of *intentionality*. Indeed, if there is no natural content and therefore no mental representations, why should there be intentionality? If intentionality is contentless, how should and could one distinguish intentionality from non-intentional phenomena? Is there not now a lurking problem of pan-intentionalism? This will be the topic of the next section.

2. *Non-representationalism and intentional realism: How low can you go?*

Any textbook in philosophy of mind will reveal that the property of "intentionality" is a fundamental property of minds. But what is intentionality? Apart from the basic idea of intentionality as a *relation* between minds and world, consensual definitions are hard to find; metaphors abound. Linguistic models are often convoked for defining and individuating intentional states: reference, representation meaning and content would be proper to intentional states. Here is for instance John Searle:

> Intentional states represent objects and states of affairs in the same sense of 'represent' that speech acts represent objects and states of affairs. (Searle 1983: 4)

Associating intentionality with representation is the core of the *representational* theory of intentionality (Cummins 1989: chapter 1; Morgan and Piccinini 2018). According to it, the contents of intentional states are mental representations. In order for S to be intentionally related to O, there must be a mental representation of O in S. This works for intentional relations with objects, but also with propositions (Field 1979; Fodor 1985). Representationalist theories of intentionality often equate intentionality with representation and content. Intentional states would be contentful states, or states that represent objects. The problem of intentionality would be the problem of explaining how some entities can represent or stand for other entities (Stalnaker 1984: 6). This ambiguity or even confusion between representation and inten-

tionality has some theoretical advantages: it easily gives the impression that intentionality can have a causal role in the physical world, in virtue of the physical and formal properties of its representational vehicles.

Because of its anti-representationalism, REC cannot be suspected to endorse a form of representational intentionalism. But there is a more basic tension than the tension between representationalism and non-representationalism when one wants to offer an account of intentionality. It is the tension between intentional realism (or intentionalism) and non-intentionalism. And, from the perspective of this basic tension, REC and representationalism are in the same boat: they endorse (different versions of) intentionalism—like other enactive theories of cognition (Varela 1992, Thompson 2007, Gallagher 2017, Noë 2004) I will not discuss here.

For REC, basic cognition is a matter of embodied engagements responding to wordly offerings or informations in the environment (Hutto and Myin 2017: 130). These responses do not involve contents; but they must be explained, and in particular their *connecting* properties with the world:

> Anyone who claims that cognition is entirely a matter of contentless computations—for example anyone who allows that content falls out of the equation entirely, and offers no successor notion—will be unable to explain how organisms relate to and connect with targeted aspects of their wordly environments. Any theory of this extremely austere sort will be woefully ill-equipped to explain the array of findings that give us reason to think that cognitive activity is deeply influenced by E-factors. (Hutto and Myin 2017: 59)

Getting rid of content is not sufficient for being revolutionary. You also need to provide an alternative (that is, contentless) story to a classical question: how do organisms relate to aspects of the world? Answering to this question is pressing, especially if one holds that cognition is *embodied*, *extended* and *embedded*: how can agents relate to parts of the world that are influencing and even constituting their cognitive operations? Facing this challenge, the own *explanans* of REC is *intentionality* or more precisely *Ur-intentionality*, the "most primitive form of intentionality" (2017: 96). Intentionality is thus, for REC, the basic operator that will ground a 4E approach to cognition:

> REC questions whether, on close inspection, there is a need to posit any kind of content at the basement level of cognition in order for the sciences of the mind to do their fundamental explanatory work. *On the positive side, REC recommends getting by with something less—an alternative, contentless notion of intentionality*. In short REC avoids a host of intractable problems—most prominently the HPC [*Hard Problem of Content*] and the problem of mental causation—by *sticking with the idea that organisms target chunks of the world* without assuming semantic contents make any causal or other explanatory contribution when it comes to saying how such targeting is possible. (Hutto and Myin 2017: 60, my emphasis)

To put it in a nutshell: "basic minds target, but do not contentfully represent, specific objects and states of affairs" (Hutto and Myin 2017: 130). Already in their 2013 book, Hutto and Myin stated that organisms exhibit "intentional directedness" towards aspects of their environment (2013: 81) (see also Hutto 2008: chapter 3 on the differences between intentional attitudes and propositional attitudes). This intentionality is a property of organisms, and not of mental or physical states inside of these organisms.

REC therefore endorses a form of intentional realism (or intentionalism): intentionality is a real, natural and intrinsic property of organisms. It is not a matter of observation, description, and interpretation. Organisms display Ur-intentionality independently of what one may think or say about them, and independently of their possible inclusion in socio-cultural practices. The "reality" of intentionality amounts to its being natural, and naturalizable from the resources of teleosemiotics. Intentionality is neither magic nor given: intentionality has been shaped through ontogenetic and phylogenetic history (Hutto and Myin 2017: 108, 130; Hutto and Myin 2013: 111).

This definition of intentional realism is very distinct from classical definitions and forms of intentional realism, which systematically associate intentionality with content and representations. Being realist about intentionality would be being realist about the existence of mental content, propositional attitudes and mental representations (see for example Jacob 1997: chapter 1). Conversely, anti-realism about intentionality would be the idea that there is no "fact of the matter about what a person (or a person's mental state) *really means*" (Dennett 1987: 294). Since REC urges us to divorce intentionality from meaning and representation, its form of intentional realism must not involve content, intensionality, meaning or representation in the very definition of intentionality. What is *real*, in REC's intentionalism, is the property of "aiming at" or "pointing towards" worldly offerings (Hutto and Satne 2015: 530, note 7). Indeed, if linguistic landmarks and representationalist descriptions are refused for defining intentionality, other metaphors can be used. Metaphors such as "aiming at", "targeting" or "pointing" are supposed to suggest the core of intentionality, echoing the etymology of the word (cf. the latin verb "intendere", "aiming at something"). Even though REC gives up representationalist and semantic readings of aboutness, it keeps the idea of intentionality as a real power of organisms. Being realist about intentionality is considering that the aboutness of mental states is the result of their having an (*intrinsic) power of aiming at, or being directed to, objects*. There is a pointing-beyond-itself which is characteristic of some entities.

For non-realism about intentionality, there is no intrinsic intentionality, be it contentful or not. Nature does not produce meaning or content (on this point, Hutto and Myin are right), but not only: the aboutness of mental states and organisms is not a matter of their being *intrinsically* aimed or targeted at something (it is here that Hutto and

Myin disagree with non-realism about intentionality). More precisely, one version of non-realism will argue that directedness to objects is so pervasive and trivial in nature that it is insufficiently interesting and specific for providing that philosophical property intentionalists like Hutto and Myin name "intentionality" (Rosenberg 2013: 2015). Intentionality can for instance rather be a property of the linguistic *articulation* of cognitive and mental attitudes. Another version will argue that object-directedness is always observer-dependent, and thus never intrinsic (some versions of Maturana-inspired autopoietic enactivism endorse this idea).[6] One proof of the proximity between REC and its classical representationalist "opponent" is their common reaction to non-realism about intentionality: incredulity. As an example of the important foundational role it gives to intentionality as a real property, one may consider REC's criticism of *neo-pragmatist* accounts of intentionality, which hold that all intentional properties are derived from linguistic and social practices. For REC, the denial of natural intentionality entails that neo-pragmatism has no means "of accounting for the kinds of intelligent thinking that are needed for explaining participation in the relevant socio-cultural practices" (Hutto and Satne 2015). In short, a natural and real form of intentionality would exist, and would be the *only* way of explaining basic forms of intelligent thinking—as if other (non-intentional) answers and proposals were *a priori* unavailable or considered as dead ends or non-starters.

The intentional realism (or intentionalism) of REC can raise suspicion from two very different sides: for representationalist intentionalists, REC's intentionality is not intentionality, because it does not involve representational properties or content. For non-realism about intentionality, REC's intentionality is so low and basic that it is virtually indistinguishable from non-intentional relations (we here meet the dilemma presented in the first part of the paper). In order to develop this last point, two supplementary remarks must be made.

First, REC's intentional realism embraces the classical picture of intentionality as a relation to *objects*. Intentionality is *object*-directedness. If the frog is intentionally related to the world, it is because it is related to objects, and not mere things: it is related to entities that have a specific behavioural profile (Hutto and Myin 2017: 111–112). It aims at objects, because *object-directedness* is defined, since Brentano, as a core property of intentionality.

Second, REC is at pains to insist on the fact that being intentionally directed at something is not only being disposed to do something; it has a normative dimension. More exactly, what is intentionally targeted is normatively fixed by past interactions between organisms and their environment (Hutto and Myin 2017: 112). The natural attunement between organisms and their environments in the past not only structures the profile of an organism's current tendencies for response, it

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[6] See Abramova and Villalobos (2015).

normatively fixes what is intentionally targeted, in complicated ways across multiple spatial and temporal scales.

These two remarks can help us to understand how Hutto and Myin were able to respond to an important objection regarding the reality of their own "Ur-intentionality". As Roy (2015) was one of the first commentators to notice, the main challenge of REC's intentionalism is to show how a non-semantic and contentless relation between organisms and parts of the world should nevertheless be seen as an intentional relation. One can address this challenge to REC without being a (covert) representationalist.[7] Indeed, one can reject the existence of Ur-intentionality not because it is contentless or devoid of semantic properties, but because it seems to correspond to a relation which is so basic and pervasive that it is useless and misleading to call it "intentionality". There are, to be true, "biologically forged mind-world connections", and indeed, they do not have "to be characterized in semantic terms" (Hutto and Myin 2017: 108). But, more fundamentally, why turning these "natural involvement relations" (Godfrey-Smith 2006: 60) or "natural attunement relations" (Roy 2015) into intentional relations? If they are so basic, why seeing them as intentional? (and not: "if they are not semantic, why seeing them as intentional?"). There are two answers provided by Hutto and Myin: a broad answer, already mentioned above, arguing that it is *necessary* to see these relations as intentional relations if one wants to understand how cognitive organisms connect to their environment. In line with intentionalists, REC considers that the relation between organisms and their world is a scientific question, and that intentionality is the (scientific) answer to it[8]. And there is a narrow, and more technical answer, straightforwardly directed to Roy's question (Roy 2015: 123), who asked why the directedness organisms have towards elements of their environment should be understood in terms of intentional directedness to objects, and not merely in terms of behavioural attunement. To this objection, Hutto and Myin replied in their 2017 book:

> It is because REC casts Ur-intentionality in normative terms that it does not equate basic intentional directedness "to a sort of property of natural attunement and thus loses its connection with… objectivation" (Roy 2015). (Hutto and Myin 2017: 112)

It is thus the normative character of the targeting that grounds the objective dimensions of intentionality and more broadly that preserves the place of intentionality in a naturalistic framework. Indeed, as Hutto and Myin say, "it is precisely because REC makes room for at

[7] Contrary to what Hutto and Satne (2015: ft.7) suggest, when they say that the ones who reject Ur-intentionality proceed by defining intentionality in terms of content. That is an incorrect characterization of all their possible opponents.

[8] This can be contrasted with Dennett's non-intentionalism: "The phenomena of intentionality are both utterly familiar—as salient in our daily lives as our food, furniture, and clothes—and systematically elusive from scientific perspectives" (Dennett 2013: 64).

least this much normativity that it differs from the eliminativist, strict naturalist approaches (…)" (2017: 112). Normativity makes for objectivation, which is the defining feature of intentionality.

I would like now to discuss Hutto and Myin's reply to Roy: is this reply sufficiently clear and coherent for dispelling non-intentionalist worries?

(1) *Normativity and objectivity.*

Let us accept that natural normativity is real, and not observer-dependent. Let us accept, by charity, that "there are historical facts about what ancestral organisms interacted with in their environments that shaped, and currently constrain, the response profiles of members of any given species" (Hutto and Satne 2016). How is that sufficient for positing intentionality as the power of targeting objects? That is, how should the presence of normativity be sufficient for providing object-directedness, which is seen by REC as the defining feature of intentionality? Representationalist intentionalism will ground object-directedness on representational content (content is the aspect under which a thing is apprehended, and is thus an object for a mind); this road is not available to REC, but can normativity do the main work here?

There are many devices in nature (hearts, kidneys, intestines…) that function normatively, if we stick to REC's characterization of normativity, but that does not make them devices which are targeted towards *objects*. Organs selectively respond to viruses and bacteria; does this mean they are targeted to viruses or bacteria as objects, and are thus intentional systems? A threat of bloat (or pan-intentionalism) appears: we met it at the end of section I concerning contentless representation (if a mental representation is just a mediating structure, why should not the world be full of mental representations?). We meet it now for intentionality: if intentionality is a capacity of living systems to target (with possible error) objects, this capacity being subject to history and norms, then why are not sunflowers, kidneys, bacteria and intestines bearers of intentionality?

If REC challenges Chomsky's contentless representationalism by arguing that it entails that mental representations are everywhere, this challenge should also concern their own position concerning intentionality. Why being so demanding for content and representation (nothing in nature can constitute them) and so liberal for intentionality (it is enough, for intentionality, to be made out of normative relations)? The objection according to which *objective transitivity* (being directed to objects) is too broad and general for defining intentionality as a defining feature of cognitive or mental systems is not new: it was already addressed by Edward Titchener (1909: chap. 2) to Brentano's idea that intentionality would be the defining mark of mental phenomena.

REC is not alone facing this problem of pan-intentionalism. And it might transform this problem into a basic commitment: there is inten-

tionality as soon as there is life. REC can here join forces with some versions of *autopoietic* enactivism which do not hesitate to see basic forms of intentionality in very basic living systems, like bacteria (Varela 1992).[9] For REC too, simplest life forms are capable of an intentionally directed responding and directedness (Hutto and Myin 2013: 36), although REC is suspicious towards the use of concepts like "meaning", "contents", "sense-making" and "significance" for describing the responses of simple living systems (2013: 35). "Basic interest-driven ways of responding" would be the right platform for understanding how mentality can be intentionally directed (2013: 36). Agreeing with these intentionalist versions of autopoeitic enactivism, and accepting that intentionality is present as soon as there is life, REC would also not be very far from Tecumsey Fitch's model of *nano-intentionality* (Fitch 2008): there is already an intrinsic goal-directedness inherent in the behaviour of living eukaryotic cells, and more precisely a goal-directed capacity to respond adaptively to novel circumstances, by arranging and rearranging molecules in a locally-functional manner, based on past history. In doing so, cells autonomously arrange their form in such a way as to optimize their ability to perform certain quite specific functions. Of course, goal-directedness is not object-directedness. It remains to be seen whether Fitch's nano-intentionality exhibits the essential feature of objectivation which is classically associated with intentionality. Be that as it may, by going biological about intentionality, REC would meet again the threat of pan-intentionalism: there would be intentionality everywhere there are basic biological systems such as cells and bacteria. Intentionality would become a universal generic property of living systems, and we would need many specific distinctions inside of the realm of living beings in order to account for the differences and the relations between, for instance, the intentionality of bacteria, the intentionality of protozoa, the intentionality of an organ, and the intentionality of an organism. What would be the relations between, say, the Ur-intentionality of the organism and the intentionality of the billions of cells it is made of, and the relations between this organismic Ur-intentionality and the intentionality of propositionally contentful mental states? Moreover, if REC considers that intentionality (as object-directedness) is already present in cells, it owes us a new definition of the role of intentionality in cognitive science. How much would intentionality be a specific cognitive property or phenomenon studied by cognitive science (and not biology)? Does it also entail that artificial creatures cannot exhibit intentionality or harbour states having intentionality?

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[9] See Abramova and Villalobos (2015) for a non-intentionalist version of autopoietic theory: even contentless, intentionality as directedness is a case of anthropomorphic projection which is ascribed by the observer to the organism.

(2) *The place of intentionality in nature.*

By getting rid of content, REC escapes the problem of explaining how semantic properties can be causally efficacious, but it does not escape the problem of accounting for the causal role of intentionality in nature. If intentionality is a real-intrinsic property of organisms that deserves to figure in our best theories of cognition, the least we may ask is this: what difference does this property make? REC will answer by saying that intentionality is what allows organisms to be related to specific aspects of their environment. Very well, but an explanation of how intentionality *works* for achieving that role is still required. The causal role of intentionality cannot be, of course, a matter of mental representations; REC will rather appeal to the instantiation of intentionality in behavioural dispositions shaped by evolutionary history (Hutto and Myin 2017: chap. 5). However, why should intentionality be something more than a *name* for qualifying these dispositions? It is not because you may describe organisms having dispositions with the use of the intentional idiom ("aims", "targets", "is directed towards"…) that organisms *become* intentional agents for real. Organisms have propensities and dispositions, products of a long history and learning. Intentionality might not be distinct from them; it might just be a way to describe these propensities and dispositions, and especially their objects-involving manifestations.

From these two objections, we can now paraphrase the dilemma REC stated for contentless representationalism as follows, and target it towards the challenge of explaining the nature and the causal role of Ur-intentionality: "either retain mental contents and their troublesome properties or let go of mental contents and offer a theory of intentionality that is indistinguishable from non-intentionalist accounts". In sum, Hutto and Myin's radical view of intentionality, stripped of all its representationalist apparatus, allows us to inquire over the very idea of intentionality: what is this special capacity or power of minds (or organisms) to target some objects? Is there any? Should there be any?

Conclusion

REC's criticism of representationalism assumes that mental representations (if any) have content (whatever its properties) and reference. This assumption is refused by some varieties of representationalism, as contentless representationalism, which is therefore left untouched by the anti-representationalist strategy of REC. Moreover, this assumption is shared by REC's best enemy: content-involving cognitive science. In order to defuse the plausibility of contentless representationalism, REC has expressed a dilemma; but this dilemma can also be applied to its own positive model of (non-representational) intentionality. Like CIC and more broadly classical cognitive science, REC considers that intentionality is a basic property of cognitive systems.

However, the way it characterizes intentionality seems insufficient for distinguishing intentionality from non-intentional relations, unless one accepts intentionality is present in every living system.

Up to now, there has not been a real debate between REC and classical representationalism, perhaps because proponents of the latter one believe proponents of REC live in a very different world. Hence disdain or incredulity. But they are not living in a different world: on some aspects, REC and classical representationalism are sharing important presuppositions that may be at the origins of some of the problems they respectively face. REC is not necessarily *revolutionary*: it retains some crucial assumptions shared with CIC, as the equation between representation and content, and intentionalism. Nevertheless, it may well be *radical*, in the sense that it forces us to focus on these foundational issues more clearly and demandingly than before.

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