

EXTENDED FUNCTIONALISM FROM A BEHAVIORAL PERSPECTIVE

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Abstract: Mental (or psychological) phenomena (those we refer to by means of terms from so-called folk psychology; e.g., intentions, fears, reasoning processes) are often thought of as confined to the insides of the body. The extended mind view, like behavioral approaches, challenges this assumption, by claiming that some mental phenomena comprise external ingredients. Yet, unlike behavioral approaches, the extended mind view (e.g., as in Clark & Chalmers' seminal paper) holds that these phenomena often, or depending on the category of mental phenomena always, happen inside the body altogether (which is acknowledged by certain behavioral approaches) *and* as non-behavioral causes of behaviors (an idea in general rejected by behavioral approaches). This paper highlights what I think are shortcomings of the extended mind view, with a focus upon the functionalist version thereof—extended functionalism. I suggest that this approach misses some major features of psychological concepts, and that it overlooks some behaviors as constituents of mental phenomena. The paper also suggests that a behavioral alternative, based upon contributions by Ryle and Skinner, among others, retains the qualities of extended functionalism while warding off its shortcomings.

Key words: extended mind, extended functionalism, behaviorism, philosophy of mind, behavior, covert behavior, mind-life continuity.

Traditional and contemporary ontologies and epistemologies of mental (or psychological) phenomena, regardless of all their differences, very often share the internalistic assumption (IA) that these phenomena are overall internal to the body (cf., e.g., mind-brain identity theories and traditional forms of functionalism, including the standard computational theory of mind; simulation and theory-theory approaches to understanding other minds).¹ Mental phenomena (those we refer to by means of terms from “folk psychology”; e.g., desires, intentions, fears, reasoning and perceptual processes), according to IA, are hidden under the skin

¹ For overviews, one can have a look at Avramides (2001), Gallagher & Zahavi (2008), and Rowlands (2003, 2010). To be sure, some traditional and contemporary approaches are not committed to IA; for example, monistic idealism is not. Maybe even substance dualism is not (cf. Burgos, 2015).

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(exoskeleton or the like, as the case may be), that is, are unobservable (except indirectly) from a third-person vantage point (i.e., to others), strictly speaking; and we cannot but guess which mental phenomena are instantiated by others on the basis of their behavior-environment relations over time.

The extended mind view (e.g., Clark 2008; Clark & Chalmers 1998; Rowlands 2003; Wheeler 2010), like behavioral approaches (e.g., Lazzeri 2016; Rachlin 2014; Ryle 1949; Skinner 1953), on the other hand, challenges this assumption, by claiming that some mental phenomena comprise external ingredients. Yet, differently from behavioral approaches, the extended mind view, at least in its typical formulations, holds that mental phenomena often, or depending on the category of mental phenomena: always, happen both thoroughly inside the body (which is acknowledged by certain behavioral approaches, such as Skinner's 1953) *and* as non-behavioral causes of behaviors (an idea overall rejected by behavioral approaches) (cf. Lazzeri 2015b; 2016). Despite the extended mind view's acknowledgement of the external, it may nonetheless have shortcomings relative to behavioral approaches.

In this paper, extending on Lazzeri (2015b), I shall highlight what I think are shortcomings of the extended mind view. My focus here will be especially upon the standard, functionalist version thereof—also called extended functionalism (EF), put forward by Clark (2008; 2010), Clark and Chalmers (1998) and Wheeler (2010; 2012). I shall argue that EF's reliance upon traditional functionalism about psychological categories (worked out by Putnam 1975 and Fodor 1968) leads it to two troubles, namely: (i) to miss some major features of psychological concepts (as used in their “natural habitat,” i.e., in ordinary linguistic practices); and (ii) to overlook certain behaviors as constituents of mental phenomena. Non-functionalist versions of the extended mind view (not to be confused with strong forms of embodied and enactive approaches), like Rowland's (1999; 2010), will not be directly discussed herein; yet, they seem to face similar challenges at a general level, *mutatis mutandis* (as I shall comment in due course).

I do not intend (i) and (ii) to be tantamount to knock-down objections. The criteria that underpin these objections (as will become clearer later on) are (a) consistency with the core features of the relevant (psychological) concepts; and, especially in the case of (ii), (b) ontological simplicity-cum-explanatory work. These criteria can help us build only fallible appraisals and models. After all, to allow us a sharpened perception of the target phenomena conceptual revisions are

² By mental or psychological categories I mean so-called propositional attitudes, emotions and so on; more on this shortly.

³ Strong forms of embodied and enactive views, as found in Barrett (2011), Chemero (2009), Hutto & Myin (2013), Noë (2009) and Rockwell (2005), seem to suggest behavioral perspectives, as long as they hold that behaviors are (at least part of) the raw material of mental phenomena of several categories—i.e., that every token of several psychological categories is partially or entirely made up of behavior. Some (although not all; cf. Barrett 2015 and Wojcik & Chemero 2012) of their proponents (e.g., Hutto & Myin 2013) imply a contrast with behaviorism, sometimes, in my opinion, as a result of narrow renderings thereof in the philosophy of mind literature. For details, see Lazzeri (2016).

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sometimes in order (Austin 1957, p. 8). Besides, the positing of fewer entities by a model does not warrant nearness to the truth when it accomplishes more explanatory work than other models. Yet, criteria (a) and (b) (the former sometimes couched, I think rather misleadingly, in terms of “intuitions”⁴) are not by chance broadly accepted (although, of course, the former not as much as it once was) in contemporary philosophy as weighting tools when it comes to ontological issues (cf., e.g., Tallant 2011). By and large, they count as virtues of a philosophical model. Later on, I shall explain the import of (a) in particular, considering that it is more debatable in the present context (among other things, in view of Wheeler’s seeming divergence with Clark and Chalmers regarding so-called “common-sense” functionalism).

Since I agree with EF that mental phenomena are not confined to the insides of organisms, my assessment of EF is fundamentally different from Adams and Aizawa's (2001) and Rupert's (2004), wherein the internalistic assumption, IA, is supported. Besides, my strategy is different from Sprevak (2009), as will be explained.

As a second goal, this paper endeavors also to support a behavioral model as alternative (Lazzeri 2015a; 2015b; 2016), which draws upon some contributions worked out by Rachlin (2014), Ryle (1949), and Skinner (1953; 1976/1974), among others. (This model bears similarities to strong forms of embodied and enactive views, such as Hutto & Myin’s 2013.) Like EF, the approach suggested goes beyond traditional content (or semantic) externalism (Burge 1979; Davidson 2001; Putnam 1975), by rejecting IA. Unlike EF, but like Rachlin, Ryle, and Skinner, it holds that overall mental phenomena are made up of behaviors. Like Skinner, but unlike Rachlin, I hold that some (although by no means all) of these behaviors are covert (instead of overt), in a sense that will be explained.

The paper is structured in three main sections. In the first two I shall describe and discuss EF, respectively. In the final section I shall lay out in broad contours the alternative approach and point out what I believe are its advantages over EF.

Before getting down to the business, let me briefly clarify two things. First, by *psychological categories* I mean types of mental or psychological phenomena, including the following: so-called propositional attitudes (e.g., believing, intending, hoping); affections, including the sub-categories of sensations (e.g., itches, pains), emotions (e.g., fear, anger), moods (e.g., cheerfulness, grief) and appetites (e.g., thirst); skills (e.g., knowing how to swim, knowing how to play chess); cognitive processes, broadly understood (e.g., reasoning, remembering, imagining); and character (or personality) traits (e.g., to be courageous, to be open

⁴ Intuitions, it should go without saying, can be incoherent with the objective features of the relevant concepts.

⁵ I say ‘broadly understood,’ because the use of this term here is not at all committed to a cognitivist, computational view of these phenomena (reasoning, remembering, paying attention, and so on).

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minded).⁶ Second, by an *instance of a mental phenomenon* (to be contrasted with a type or category thereof) I mean a singular, unrepeatable phenomenon (e.g., one's act of remembering what happened yesterday; Darwin's intention to go to South America in 1831; one's own ability to play chess), which lasts for a short (seconds, minutes) or long (sometimes weeks, years) time and exemplifies a given psychological category (in the sense just explained).

Extended Functionalism

I shall start off by describing what seems to be EF's main features, as worked out especially by Clark (2008; 2010), Clark and Chalmers (1998), and Wheeler (2010; 2012). EF's core thesis is that the instances of certain categories of mental phenomena can be, but are not always, partially made up of processes and structures visible outside the organism's body. The categories Clark, Chalmers, and Wheeler have in mind are those of cognitive processes (such as reasoning and remembering) and a sub-category of propositional attitudes, to wit, beliefs (more exactly, so-called dispositional beliefs, as opposed to supposed occurrent ones).⁷ The external processes that can partially make them up are taken as exploitative and manipulative actions of the organism; for example, the manipulation of buttons in the arcade game Tetris or of pieces of a jigsaw-puzzle to try out possible fits, and the use of pencil or one's fingers to perform multiplication. The structures are understood as information-bearing (or representational), like notebooks, books, mobile phones, shopping lists and landmarks (cf., e.g., Clark 2008, p. 76; 2009, p. 964-966; Clark & Chalmers 1998; Rowlands 2010, p. 58-59; Wheeler 2010, p. 245-246). EF suggests a somewhat externalized version of computational view of the mind.

This is thus an opposition to the internalistic assumption, IA. In other words, EF opposes what Rowlands (2003) calls The Location Claim, whereby any instance of mental phenomenon (of any category) exhibited by an organism *s* is spatially located inside *s*'s body (or, if you want, skin, exoskeleton or the like, depending on the case). Thus, EF is an opposition both to internalism (e.g., present in Descartes' work and the modern Cartesian tradition) and classical content externalism (e.g., Davidson 2001; Putnam 1975). Traditional content externalists take IA for granted, and do not go along with internalism only when it comes to what Rowlands (2003) calls The Possession Claim, which they reject; viz., the thesis that the individuation of the possession of any (type of) mental phenomenon by an organism *s* is, at least in principle, independent of reference to features of the environment external to *s*'s body (cf. Rowlands 2003). The contrast is explicitly

⁶ For a largely neutral taxonomy, see Lazzeri (2012). A caveat: Readers unfamiliar with contemporary philosophy of mind may find weird to say that sensations are 'mental'. However, 'mental' here is understood broadly, on par with 'psychological', which include, although far from exclusively, subjective phenomena (and sensations are somewhat subjective).

⁷ I shall talk here of 'beliefs' for short.

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drawn by Clark and Chalmers (1998), who orients us to the need for a rather “active externalism” (or, in Rowlands’ words, an externalism with respect to the vehicles of content).

Central to this view is what came to be called the Parity Principle, whereby:

If, as we confront some task, a part of the world functions as a process which, *were it done in the head*, we would have no hesitation in recognizing as part of the cognitive process, then that part of the world *is* ... part of the cognitive process (Clark & Chalmers 1998, p. 8; their italics).

The idea is that the location of a process does not matter for it to count as cognitive (and, thereby, mental), provided it has the relevant functional role. We are presented to a sort of extended functionalism (Clark 2008; Wheeler 2010; 2011; 2012). Wheeler (2012, p. 156) goes as far as to say that, “the really radical and revolutionary movement was functionalism, not EM [the extended mind]. EM simply makes manifest one of the implications of functionalism. In other words, EM is just a footnote to Putnam.”

Traditional functionalism about mental phenomena says that something is a mental phenomenon (e.g., the belief that it will rain) if it bears the right causal relations to sensory stimuli as inputs (e.g., was an effect of seeing dark clouds in the sky or hearing a lightning strike); behaviors as outputs (e.g., picking up an umbrella); and other (supposed) inner mental phenomena (e.g., it causally interact with the belief that lightning signals rain), taken to be realized—and to be multiply realizable—by the brain or similar substrata (Fodor 1968; Putnam 1975).⁸ As Putnam (1975, p. 428) sums up, “if a psychological predicate applies to one organism *P*, then it applies to every organism which is functionally isomorphic to *P*, and which is in the states which correspond (under the isomorphism) to the states that *P* is in.” IA, in other words, the Location Claim, typically in a token-token identity frame, is taken for granted in the traditional formulation of functionalism.⁹ The emphasis on the idea of causal and inner character of mental phenomena is often stressed (e.g., Block 1980; Braddon-Mitchell & Jackson 2007; Fodor 1968; Kim 1996) as a feature of functionalism by contrast to approaches like Ryle’s (1949).

Extended functionalism (EF), on the other hand, suggests that to count as the instance of a kind of mental phenomenon, in particular of belief or cognitive

⁸ That is, roughly, traditional functionalism about mental phenomena claims that these phenomena amount to causal roles played by inner states and events over behaviors, given proper environmental stimuli and other mental phenomena, which taken holistically are causes of behaviors, according to this view.

⁹ As is well-known, Armstrong and Lewis’ (e.g., Armstrong 1980; Lewis 1980) restricted type-type identity theory is sometimes (e.g., as in Block 1980 and Braddon-Mitchell & Jackson 2007) taken as a functionalism of sorts as well.

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process,¹⁰ the location of the entity is beside the point, provided it bears the right sorts of causal relations to sensory inputs, behavioral outputs, and other mental phenomena. That is, provided it has the functional role that supposedly defines that kind of mental phenomenon (see also Clark 2008, p. 8; Menary 2010, p. 5; Wheeler 2011, p. 232-233; 2012, p. 154-156).¹¹ As Wheeler (2010, p. 248) puts it:

[T]he parity principle states that if there is functional equality with respect to governing behavior, between the causal contribution of certain external elements, and if the internal elements concerned qualify as the proper parts of a cognitive trait, then there is no good reason to deny equivalent status—that is, cognitive status—to the relevant external elements.

So, for example, if one were to work out a multiplication task without the help of her fingers or any other external element (like pencil and paper), but only “in the head,” people would not hesitate to call it a thinking process. Still, performing the same task with the help of one’s own fingers displays a similar functional role. That is, the latter case bears the relevant causal relations to sensory inputs, such as being asked the result of a certain multiplication; to behavioral outputs, such as providing the multiplication result; and to other mental phenomena, such as being partially caused by the desire (or will) to answer the question. From the Parity Principle, it follows that the action of using one’s fingers or pencil and paper should be recognized as a part of this instance of working out the multiplication, according to EF.

Likewise, in an often-cited example, Inga hears from a friend there is an interesting exhibition at the Museum of Modern Art in New York. She recalls that it is on 53rd Street and, motivated by the desire to see it, sets off toward that address. So, we are told, she already had the belief that the museum is on 53rd Street “somewhere in memory, waiting to be accessed” (Clark & Chalmers 1998, p. 12). We are now asked to consider Otto, an Alzheimer's patient. He relies heavily on a notebook where he likes to write down the useful new information he learns. Like Inga, Otto hears of the exhibition. Driven by the desire to see it, he looks up the address of the museum in his notebook and then sets off. According to Clark and Chalmers (1998; see also Clark 2008, p. 78; 2010, p. 45-46), the information retrieved by Otto from his notebook is a belief he already had about the location of the museum. His notebook, they claim, plays a similar functional role that “biological memory” plays for Inga. Only a locational prejudice, we are told, would encumber us from saying the information in the notebook is not a belief. It bears similar causal relations to sensory input (viz., hearing from the

¹⁰ It is important to keep in mind that Clark (2008; 2010), Clark and Chalmers (1998), and Wheeler (2010; 2012) limit their functionalism to these specific kinds of mental phenomena.

¹¹ Wheeler seems to diverge from Clark and Chalmers when it comes to whether it is up to “common-sense” to single out the functional roles distinctive of each mental phenomenon (see also Wadham 2016). I shall come back to this point at the end of the next section.

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exhibition), behavioral output (viz., going to the museum) and other psychological phenomena (in particular, the desire to attend the exhibition):

The information in the notebook functions just like the information constituting an ordinary non-occurrent belief; it just happens that this information lies beyond the skin. ... The information is reliably there when needed, available to consciousness and available to guide action, in just the way we expect a belief to be. ... What makes some information count as a belief is the role it plays, and there is no reason why the relevant role can be played only from inside the body (Clark & Chalmers 1998, p. 13-14).

According to Clark and Chalmers (1998, p. 17; see also Clark 2008, p. 79-80), the information-bearing structures that have a cognitive status are only those that fulfill four particular conditions, to wit: the structure must be reliably available to the agent and play a role in the agent's life; the information contained therein must be easily accessible by the agent; the information must also be automatically endorsed by the agent when required; and, finally, it must have been consciously endorsed by the agent in the past and be in the structure because of this previous endorsement. More recently, Clark (2010) has dropped the fourth requirement.

Finally, it is important to bear in mind that EF holds that some, and often all, of the ingredients of beliefs and cognitive processes are non-behavioral internal items. For instance, Inga's relevant belief, in the example above, is conceived of as a piece of information-bearing state stored in her brain (endowed with causal powers over behaviors like that of setting off to MoMA given the desire to go there). EF is a cognitivist approach, committed to a computational, information processing view concerning these categories. As such, it hypothesizes things such as mental representations (states that have symbolic, including semantic, properties) and processes of creation, storage, and retrieval of representations to explain behavior (cf., e.g., Clark 2008; Wheeler 2011).

In a nutshell, EF claims, based upon traditional functionalist grounds, that some instances of cognitive processes and (dispositional) beliefs are partially made up of elements outside the skin. These instances are not simply dependent upon, but rather composed of, the organism's relevant behaviors or external structures to which they bear relevant causal relations. Although we are presented to an externalism that goes beyond both traditional content externalism and IA, it is a non-behavioral externalism: it does not suggest that behaviors always partially or entirely compose mental phenomena of one or more categories (see Lazzeri 2015b; 2016). Behavior, for EF, is a component of only some instances of beliefs and cognitive processes, which often, according to it, amount to computational states and processes in the head.

Some Difficulties with EF

EF's consideration of behaviors as components of some mental phenomena is, in my opinion, laudable (even if far from good enough). Roughly, Clark and

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Chalmers' (1998) paper, like Varela *et al.*' (1991) book, came out in a time when IA was an almost unquestioned assumption in the mainstream philosophical and psychological literature outside behavior analysis. I believe that thanks partly thereto and to related works nowadays this has been changing, as witnessed by a portion of the enactive and embodied mind literature.

Nonetheless, I think that on closer inspection EF is only partially right, and not the way forward. I think there are at least three difficulties therewith, which can be classified into two, to wit: (i) EF does not coordinate with some features of psychological concepts, thereby committing category mistakes (in Ryle's 1949 sense); and (ii) it overlooks a set of behaviors that are components of some mental phenomena. I shall try to show that EF runs into the first trouble since (1) it reifies mental phenomena, and also because (2) it overlooks the standard criteria for the ascription of mental phenomena. And I shall argue that EF runs into the second trouble on the grounds that (3) it disregards the behavioral nature of certain processes that take place inside the body.

Differently from Sprevak (2009), I shall not take issue with EF's (three) requirements for information-bearing structures to possess cognitive status. Still, I do go along with Sprevak's complaint that those requirements are quite debatable and yet *ad hoc*. The caveats raised in the following will add to this complaint.

Reification of Mental Phenomena

To begin with, EF ends up reifying mental phenomena; most notably (although not only) beliefs. It follows from EF that beliefs can be available in structures like "the biological memory," notebooks, shopping lists, and mobiles. Among other things, these structures have specific locations, can be smelled, and can be transported or moved from one place to another. Hence, the token of a belief (although not its object or "propositional content"), for instance, Otto's belief concerning the location of MoMA, could be available on the left or the right of a table, moved from a room to another, and so on. Inga's similar belief would be distant a few centimeters from her forehead, could in principle be smelled, and so forth. This is inconsistent with the concept of belief. It does not make sense to say that someone's belief can move from a room to another, be some centimeters from one's own nose or desk, and the like (Lazzeri 2015a; 2015b).

EF's proponents already set off from a reifying view of beliefs by assuming that they can be stored in the brain, in a "biological memory." More generally, EF is inconsistent with the fact that psychological concepts contrast with reference to things that can be touched, stored and made available inside the head or on notebooks. As a version of traditional functionalism about the mental, it is partly committed to a (non-reductive) token-token identity theory, whereby instances of mental phenomena are, although for EF not always, instances of brain states and processes that exemplify relevant causal roles.

To be sure, cognitive processes and beliefs—and, I would say, mental phenomena of other categories as well—are deeply intertwined with elements of our environmental surroundings. Yet, if I am right, it is a (conceptual) mistake to

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conceive of these elements as components thereof. The external elements other than overt behaviors (such as shopping lists and notebooks), I submit, are more accurately depicted as (usually exteroceptive) stimuli (or sources thereof) which some behavioral components of mental phenomena get associated with, as a result of classical and operant conditioning and related learning processes (cf. Lazzeri 2015a; 2015b).

Neglect of the Behavioral Criteria for the Ascription of Mental Phenomena

The properly strong (or “active”) externalist dimension of EF, i.e., its rejection of the Location Claim (which makes it go beyond simple content externalism), is quite limited in scope. It is limited to beliefs and cognitive processes. EF's supporters apparently think that emotions, moods, appetites, skills, personality (or character) traits, and propositional attitudes other than beliefs (e.g., desires and intentions) are confined to the insides of organisms and do not have behavioral constituents. This limitation, I shall argue, reveals a more pressing issue; namely, a failure once again to coordinate with features of psychological concepts (as ordinarily used).

Why not consider the instances of these, or at least some of these, other categories as partially made up of behaviors as well? After all, it only makes sense to say that we experience these phenomena—through our exteroceptive system in others, and through our proprioceptive and interoceptive systems in ourselves—at the level of the living organism in interaction with objects, events and other organisms in natural or social contexts. Particularly in our understanding of others, we experience these phenomena as things we can see more or less directly; typically in its approaching or avoiding behaviors, besides its exploitative and manipulative ones (emphasized by EF), rather than as concealed phenomena inside the body (cf., e.g., Krueger 2012; Noë 2009; Ryle 1949).

By way of example, if, say, a person, X, watches a monkey shaking like a leaf as it realizes the presence of a lion in the nearby, afterwards running up a tree, and moving from tree to tree, but X exclaims that she has not observed the monkey's fear, then (unless this monkey is pretending and does not behave likewise in similar situations), X has missed the point. Likewise, if X knows that her siblings spend a lot of time watching and playing football, talk oftentimes about football matches, and such like, and yet X claims that her siblings interest in football is hidden inside them all the way through, it seems X does not understand the concept of interest. This is like implying that one has watched research being conducted in laboratories, lessons in classrooms, students in the library, and similar (behavior-environment) interactions, but has not seen the university, as Ryle (1949) famously remarked.

Granted, sensations—phenomena such as prickles, headaches and tickles, which happen in parts of the body and have distinctive qualitative (or phenomenological) experiences—may be exceptions. Even though they are associated with typical behaviors (actions and reactions), they seem to amount to purely interoceptive and proprioceptive stimulations in the body, which are not

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behaviors (cf. Lazzeri 2015a). That is, the very unpleasant subjective experience of pain in someone X, for example, implies X is in pain.

Some instances of emotions, moods, appetites and other psychological categories comprise interoceptive and proprioceptive stimulations as well; but not all instances thereof and not exclusively. For example, a similar qualitative experience, it seems, can (sometimes) take place in some fears, irritations and a gloomy mood; another similar qualitative experience can take place, it seems, when someone is proud, enjoying something, or on cloud nine. Furthermore, someone may be afraid, sorrowful, proud, enjoying something, or happy, without having any identifiable or significant qualitative experience. Besides, behavioral criteria tend to prevail over simple qualitative experiences. For example, X may not realize and feel differently at first, but her behaviors can determine if she is jealous, sad, hungry, interested, and so forth (cf. Bedford 1957; Bennett & Hacker 2003; Rundle 1997). Thus, interoceptive and proprioceptive stimulations may be but no more than partial components of some instances of mental phenomena (cf. Lazzeri 2015b).

In other words, overall, with possible exceptions, it is the organism's actions and reactions in context that are criteria for the ascriptions of mental phenomena. Brain states and activities taken by themselves (rather than as parts underlying the whole organism's environmental interaction) are not (cf., e.g., Bennett & Hacker 2003; Ribes-Iñesta 2008; Wittgenstein 1953). As a matter of use of our ordinary psychological concepts, it does not make sense to say that we can see mental phenomena (someone's desire, expectation, fear, hunger, open mindedness, and so on) in an organism's brain activity alone, although surely they depend upon (cannot take place without) certain neurophysiological structures and activities. By trying to make identifications between types or instances of mental phenomena with types or instances of brain phenomena, one would inevitably appeal to behavior-environment interactions of the organism over time to establish the correlations. For one can only experience the criteria for mental phenomena by taking into account the organism interacting with the environment. Brain states and events may be preconditions for, but are not identical to the mental, and may also be part of the organism's behavior.

This trouble can be remedied by EF to some extent by enlarging the scope of its common formulation. Colombetti and Roberts (2015) have suggested that EF's proponents should expand their approach so as to also encompass emotions, moods and character traits. However, owing to its reliance upon traditional functionalism, even with such amendment (the expansion) EF would entail that *many instances* of phenomena of these (i.e., emotions, moods and character traits) and the aforementioned categories (viz., beliefs and cognitive processes) are *non-behavioral states or events completely inside the organism's body*. Again, this fails to coordinate with core nuances of psychological concepts. (The next subsection will add to this point.)

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Neglect of Covert Actions and Reactions

EF's proponents may point to the fact that one can hide one's own emotions, cognitive processes, and so forth, as a reason favoring their claim that only some, but not all, instances of certain psychological categories are made up of behaviors. In other words, EF's proponents do not put forward behavioral approaches based partly on the common complaint against these approaches (cf., e.g., Armstrong 1980; Braddon-Mitchell & Jackson 2007) that mental phenomena often take place without the organism exhibiting any relevant movements of the outside body.

Yet, does not the concealment of mental phenomena, in general, come down to the concealment of one's own behaviors? I think that it is plausible to say that, for example, when X tries to hide her fear of some dog breeds, she is fundamentally trying to avoid telling that she exhibits avoidance and related behaviors elsewhere with respect to these dogs. Or (as the case may be) concealing some largely imperceptible reactions (conditioned or unconditioned Pavlovian responses) for a while, such as acceleration of breathing rate and constriction of blood vessels, as she sees, say, a Rottweiler coming up.

To be sure, mental phenomena, like some (by no means all; cf. Lazzeri 2015a; 2015b) instances of reasoning and remembering, often happen more or less inside the body in their entirety. Working out a mathematical problem and planning travel while sitting on a bus with closed eyes are cases in point. EF's proponents, as we have seen, think of cases like these—i.e., of mental phenomena without any overt behavior being displayed by the organism—as computational, non-behavioral processes of symbol manipulation inside the head.

Nonetheless, the inner processes that make up these instances of mental phenomena actually have a behavioral nature. When one is working out a mathematical task without exhibiting any overt behavior, for example, one is still behaving, albeit largely or (in the limit) entirely imperceptibly from a third-person observation of the outside body. We first learn to work out mathematical tasks with our fingers, sticks and stones, pencil and paper, with the help of relatives, teachers, and friends—all of these in virtue of operant conditioning processes.¹² (This is very clear once we take into consideration, for instance, the process of learning multiplication tables.) Only later do we become able to perform the task covertly, “in the head” (cf., e.g., Ryle 1949; Skinner 1953; 1976/1974; Vygotsky 1978). That is, the latter, like the former, owe their existence (at least partly) to the same learning mechanisms. The inner character of the latter should not preclude an even-handed treatment of them as behaviors, on pain of chauvinism and lack of ontological simplicity (cf. Lazzeri 2013; 2014; Leigland 2014; Palmer 2009).

Also, when X sees a threatening animal closing in, X may feel her heart beating fast, imperceptibly to others if she does not manifest it in gestures, facial or postural changes or the like. A person with fear of dead birds, as Skinner (1953, p.

¹² Observational learning, I assume, depends upon conditioning processes. Cf., e.g., Chance (2003) and Deguchi (1984), for reasons supporting this assumption.

166-167) pointed out, would probably show responses such as change of pulse rate upon viewing a dead bird. In spite of the inner character of these reactions to the stimuli, they have a behavioral character; for they owe their existence to mechanisms that give rise to overt behaviors—in these cases, classical (Pavlovian) conditioning processes. Again, what makes something count as behavior does not have anything to do with observability thereof from outside the skin.

EF neglects these behaviors, which (following Skinner 1953; 1976/1974) we may call covert, as components of mental phenomena. Instead, in place of them, EF hypothesizes computational processes of information storage and manipulation in the head causing overt behavior. EF therefore falls short of parsimony. Were EF to take into account the behavioral nature of relevant inner activities comprised in certain mental phenomena, it would not postulate these dubious entities and mechanisms to account for them.¹³ Rather, it would figure out these phenomena in terms of well-established neurophysiological activities and behavioral mechanisms of learning, like classical and operant conditioning, and related processes such as schedules of reinforcement, stimulus control and equivalence relations (cf., e.g., Barrett 2015; Hübner & Moreira 2012; Palmer 2009; Skinner 1969; Zilio 2010). EF's proponents would then conclude, to borrow Hutto and Myin's (2013, p. 9) terms, that "what structures an organism's current mental activity lies entirely in its history of previous engagements and not in some set of internally stored mental rules and representations."¹⁴

Summary and Provisos

In summary, EF, I have tried to show, runs into two general troubles. First, EF reifies these phenomena (which have a rather abstract character), and it does not sufficiently take into account the (behavioral) criteria for the ascription of mental phenomena. Hence, EF turns out to be inconsistent with some core features of psychological concepts. Second, it misses the behavioral nature of some inner events. As a result, it neglects some behaviors as components of several instances of mental phenomena, thereby lacking ontological simplicity.

The challenges just raised turn upon conceptual analysis. Nonetheless, some may wonder why bother with the ordinary usage of psychological concepts for the matter at issue. Indeed, Clark and Chalmers (1998, p. 14) state that "We do not

¹³ One might think that covert behaviors are just as hypothetical as the cognitivist posits. However, this is not the case, for they have the same ontological features as overt behaviors. As Palmer (2009, p. 13) points out: "Covert responses are not representations. The interpretative tools of the behaviorist are constrained by an independent experimental analysis; no explanatory concept can be invoked that has not been analyzed in the laboratory under experimental control, and the terms must interact according to empirical principles. ... A covert response, for example, must change in strength in orderly ways, ... and there must be a plausible history that would predict such a response. ... As a unit of behavior, it must have the dimensions of behavior."

¹⁴ It is not clear, however, whether Hutto and Myin (2013) themselves take some inner activities as covert behaviors.

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intend to debate what is standard usage; our broader point is that the notion of belief *ought* [their italics] to be used so that Otto qualifies as having the belief in question.” This may sound dismissive of conceptual analysis. However, Clark and Chalmers (see Clark 2008, p. 88-89; Wadham 2016) embrace a (extended) “common-sense functionalism,” which implies reliance on conceptual analysis to single out the supposed functional roles distinctive of each mental phenomenon. Hence, they would agree that ordinary language (wherein the psychological concepts find their “natural habitat”) matters for how we ought to use these concepts. (The problem is that they assume traditional functionalism is harmonious with ordinary psychological language.)

Wheeler (2010, §5; 2011, p. 233) seems to find a rather empirically informed, “theory-loaded” (his expression) identification of the supposed relevant functional roles more promising (see also Wadham 2016); and, hence, is possibly dismissive of conceptual analysis. In any case, the fact is that, as Austin (1957, p. 8) remarked, conceptual analysis helps us find out about “the realities we use the words to talk about,” despite not being “the final arbiter of the phenomena.” First off, there is a *prima facie* reason to believe that basic nuances of psychological concepts pick out the realities we aim at therewith, even if only approximately; for

[O]ur common stock of words embodies all the distinctions men have found worth drawing, and the connexions they have found worth marking, in the lifetimes of many generations ... have stood up to the long test of the survival of the fittest. (Austin 1957, p. 8)

Second, one easily loses sight of the target phenomena once neglecting the major nuances of the concepts we use to pick them out (cf. Lazzeri 2014; 2015b). For instance, if one implies that emotions are the sort of thing that can, like reasoning and attention, be paused for a few minutes and later resumed, then one is clearly passing by a feature of our concepts related to emotions. (Emotions, differently from cognitive processes, are not activities, even though, as I suggest, they are made up of behaviors spread out in time and space.) The same happens if one suggests that propositional attitudes are things that can be stored in the head or elsewhere. Just as behaviors, they are not the sort of thing that can be literally some centimeters from other things and moved from a place to another.

As a final caveat, not all proclaimed extended mind approaches rely upon traditional functionalism grounds. So-called “second-wave” extended mind views, including Rowlands’ (1999; 2010), do not. They hinge upon the idea of “complementarity” between some internal and external elements, rather than upon the Parity Principle. Still, they seem subject to similar objections raised in this section, *mutatis mutandis*. I shall not delve into details here, but, by way of illustration, they, like EF’s proponents, hold to the view that *only some tokens* of mental phenomena comprise behavior, *others being conceived of as non-behavioral, inner states or processes all the way through*. Also, they assume the traditional view when it comes to propositional attitudes, if not some other psychological categories for that matter.

A Behavioral Alternative

The reasons previously mentioned against EF, if I am correct, go to show that a behavioral approach to psychological categories can be a more plausible alternative to IA. I shall begin this section by spelling out how those reasons work in favor of a behavioral approach. Then, I shall outline in broad contours the particular behavioral approach I find more promising as alternative.

Some Reasons for a Behavioral Alternative

First off, by and large, behaviors are the right sort of components of mental phenomena, because, among other things, they have a somewhat abstract character (cf. Lazzeri 2015b; Ribes-Iñesta 2004; 2008). By ‘abstract’ I do not mean they are entirely without temporal and spacial features. Rather, I mean that such concepts have nuances that contrast with reference to things that can stand on different relations of distance to other things, be touched, contained in the brain or in a box, and so forth. Behaviors—taken singularly, in chains or sets—are on par with this feature, whereas brain states and happenings, information in notebooks and the like are not. Differently from brain states and happenings, and from things such as notebooks, behaviors (e.g., foraging, climbing, writing) overall are not more or less close to the ears and the nose.

Besides, behaviors are the right sort of components of mental phenomena for the reason that we experience mental phenomena in others and in ourselves overall in the organism’s behaviors. We very often experience mental phenomena pretty directly in behaviors and their relations to the environment over space-time—in the organism’s avoidance and approaching actions and reactions, manipulations of objects, facial and postural expressions. In other words, behaviors and their relations to objects and events in the environment are criteria for the ascriptions of mental phenomena in general. A behavioral understanding of mental phenomena, thus, is easily harmonious with this feature of psychological concepts.

Sometimes mental phenomena comprise (partially or entirely) inner happenings, which seem to lead most people to think that their mental life is non-behavioral. However, it is ontologically irrelevant for something to count as behavior whether or not it comprises external movements of the organism's body. Like interoceptive and proprioceptive stimuli (which usually take place inside the organism), behavior can be unapparent in the outside body (cf., e.g., Skinner 1945; 1953). A change in pulse rate triggered by some sight or smell is (usually) behavior (a reaction, in this case), probably a conditioned reflex, even if unapparent in the organism's outside body. X counting “in the head” how much she will expend in travel is behavior, because this activity is the product in part to a history of operant conditioning.

Finally, a behavioral approach along radical behaviorism lines is more parsimonious than EF (cf. Lazzeri 2015b). In particular, it does not postulate computational processes of storage, encoding and retrieval of mental

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representations. Instead, it calls attention to historical variables at both phylogenetic and ontogenetic levels acting through the medium of the organism's neurophysiology; as well as to the complex inter-relationships among patterns of behavior themselves and environmental stimuli—some of which behaviors and stimuli are covert (cf., e.g., Skinner 1976/1974). And here the parsimony (or ontological simplicity), I think it is fair to say, is virtuous, because it comes with powerful explanatory work and is well-established empirically. The comparative measure of the explanatory effectiveness of behavioral and cognitivist agendas is hard to come by; but I think it is safe to say that behavior analysis has been doing great explanatory work (cf., e.g., Catania 2012; Donahoe & Palmer 1994; Pierce & Cheney 2004). As Barrett (2015, p. 38) puts it, a behavioral approach is able to “potentially explain just as much with respect to behaviour as computational-representational cognitivist approaches;” and yet “without raising further concerns for how internal representations arise, get their content, and come to have their causal powers.”

A Particular Behavioral Approach

What should be the broad contours of a behavioral model to psychological categories? I think that Ryle, Skinner, and Rachlin, among others,¹⁵ have provided central elements for a plausible behavioral model of these categories. From Skinner (1953; 1976/1974) I believe we find an illuminating understanding of behaviors, the important notion of covert behavior and of private stimuli,¹⁶ subtle behavioral interpretations of mental phenomena, among other contributions. In Rachlin's (1994; 2014) teleological behaviorism we find the virtue of being a very clear-cut and non-eliminativist model, as well as an attention to molar behavior patterns, which I think are important for the analysis of some mental phenomena. Ryle's (1949) emphasis upon the dispositional character of several psychological categories, his behavioral understanding of this feature and his attention to the nuances of psychological concepts and to category mistakes I take as fundamental to a plausible behavioral approach.

I suggest that by and large, mental phenomena are made up of behaviors. These behaviors can be (i) actions and/or reactions, (ii) overt and/or covert, and (iii) singular, in chains or spread in time and space, as the case may be. Other components of mental phenomena include the relations behaviors bear to exteroceptive, proprioceptive, or interoceptive stimuli. I leave open whether the category of sensations is an exception. I think they can amount to pure

¹⁵ Echological (Gibson 1979) and enactive (Noë 2004) views of perception, for example. Cf. Lazzeri (2015a, 2015b).

¹⁶ Baum (2011) and Rachlin (2014) have recently criticized the notions of covert behavior and private stimuli. However, I think these criticisms are not right. For some replies to them, see Dougher (2016), Leigland (2014), Marr (2011) and Palmer (2011). No doubt, the notions at issue are sometimes used in a misleading way, but they should not be blamed for that (cf. Lazzeri 2015b).

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interoceptive and proprioceptive stimulations—and stimulations are not behaviors. (For details, see Lazzeri 2015a; 2015b; 2016).

In line with Skinner's (1953; 1969) understanding of behavior, I take behavior as anything an organism does that has functions and is influenced by sensorial (in general, exteroceptive, proprioceptive or interoceptive) stimuli. (For details, see Lazzeri 2013; 2014; 2016.) Going along with the historical-etiological perspective on functions (e.g., Godfrey-Smith 1994; Millikan 1984; Wright 1973), functions must here be cashed out in terms of phylogenetic and/or ontogenetic selection histories, in the Darwinian sense of selection, exemplified by natural selection and operant conditioning (cf., e.g., Hull *et al.* 2001; Skinner 1976/1974; 1981). Furthermore, I accept Millikan's (1984) idea that the functions of some traits are derived from mechanisms that have the function (due to a selection history) of producing them under the influence of relevant environmental factors. Conditioned reflex behaviors, for example, have derived functions.

Behaviors make up mental phenomena in different ways (Lazzeri 2015b). Mental phenomena like propositional attitudes, emotions, moods, appetites and character traits are dispositional. Cognitive processes and sensations, on the other hand, are episodic. In the former case, behaviors compose the phenomena in sets or aggregates over space-time, whereas in the latter in chains or individually. It makes sense to say, for instance, that working out a multiplication task takes place in the here and now and is an activity X engages in, while it does not of X's fear of dead birds. X process of working out a multiplication at a given time is constituted by operant behaviors emitted by X at this time controlled by variables such as a history of reaching the answer to similar problems and a context that requires solving the mathematical task. X's fear of dead birds, on the other hand, is made up of a set of operant and reflex behaviors spread out in time and space, such as blushing, change of pulse rate, and turning away, in relation to this sort of stimuli.

This model decentralizes the ascription of mental phenomena from human beings and few other animals to the organisms of the whole realm of life. For where there is life there are behaviors; and, according to this account, mental phenomena are, in general, composed of behaviors. Life has to do primarily with behaviors that have as their functions the obtainment of food resources, health maintenance (including avoidance of dangerous situations), seeking of mating opportunities, and the like—functions that seem to be shared by most behaviors. There are thus mental phenomena of sorts in insects (e.g., a bee can sometimes get irritated) and bacteria (e.g., they want to avoid sources of aversive stimuli), for instance (cf. Lazzeri 2015a; Nöe 2009). In other words, as long as an organism exhibits behaviors in proper inter-relationships one to another over time, it exhibits the fundamental grounds for the ascriptions of mental phenomena; and this happens in the whole realm of life.¹⁷

¹⁷ This is not an anthropomorphizing of the organisms of other species; on the contrary. There is anthropomorphism when one ascribes attributes proper of human beings to other things. I am calling attention to the significant resemblance, at a general level, between our behaviors and those of organisms of other species. This is perhaps not evident to some because our culture tends to over-intellectualize human beings, by (among other things) passing by their phylogenetic roots and

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To be sure, like EF, this account has functionalist features; but, unlike EF, not in the sense of the traditional formulation of functionalism. The definition of behavior I assume is teleofunctionalist, in Millikan's (1984) sense (although my characterization of behavior differs from hers; cf. Lazzeri 2013; 2014; Millikan 1993). Yet, mental phenomena, as here suggested, inhere functions from the behaviors themselves that make them up. For example, being hungry has to do with behaviors that have as functions the search for food, the avoidance of encumbrances to feeding behavior, and the like (perhaps with the common function of obtainment of food at a molar level), whose existence stem in part from natural selection, operant selection, or Pavlovian conditioning. The functions of psychological phenomena are those behaviors possessed in their own right. This perspective directly opposes traditional functionalism (as well as Millikan's own version of teleofunctionalism about propositional attitudes). The account has broad functionalist features when it comes to the individuation of mental phenomena, but which must be understood along teleofunctionalist and *extensive*, rather than *extended* (Hutto & Myin 2013) functionalist lines.

Summing up, this behavioral model seems to be a promising alternative to IA and the extended mind perspective. It claims that behaviors and their relations to environmental stimuli are the raw material of mental phenomena, with the possible exception of sensations. These behaviors can be actions (operant) or reactions (reflexes, taxes, and the like), besides overt or covert; and in aggregates, chains, or taken individually as the case may be. Stimuli can be external or internal to the body. This model is harmonious with the nuances of psychological concepts as ordinarily used, and is largely parsimonious, still having explanatory power.

Conclusion

According to extended functionalism, as worked out by Clark (2008; 2010), Clark and Chalmers (1998), and Wheeler (2010; 2012), the mental is not confined to the inner body. In particular, extended functionalism claims that some—but not all—instances of cognitive processes and beliefs are partially made up of behaviors or extra-neural elements of the organism's surroundings. Beliefs, in particular, are thought of as things that can be literally available in external information-bearing structures, such as shopping lists and notebooks. However, the approach seems to assume that moods, appetites, skills, and most propositional attitudes are confined to the inside body and do not have behavioral constituents. Furthermore, it holds that instances of cognitive processes that do not comprise overt behaviors are altogether non-behavioral happenings inside the body.

In this paper, extending on Lazzeri (2015b), I have highlighted what I think are some shortcomings of extended functionalism. If I am correct, this view loses

learning mechanisms, and not being much acquainted with wildlife. I do not assume, however, that our ascriptions of mental content mirror the organism's mental phenomena. Rather, they only grasp mental contents to some degree of approximation. For an elaboration on this, see Dennett (1996, p. 19ss).

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sight of some major features of psychological predicates as ordinarily used, for it does not pay attention enough to the behavioral criteria for the meaningful application of these predicates, besides overlooking the abstract character of mental phenomena. Furthermore, it lacks ontological simplicity, by missing the behavioral character of certain inner happenings involved in mental phenomena.

Although these are not knock-down objections, I submit they are stumbling blocks to extended functionalism; and help to show that a behavioral standpoint can provide a more accurate picture of psychological categories (see also Lazzeri 2015b; 2016). I have here presented the broad contours of what I believe is a promising approach of this sort.

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