

Intentionality, Cognitive Integration and the Continuity Thesis

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Published online: 23 January 2009
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Abstract Naturalistic philosophers ought to think that the mind is continuous with the rest of the world and should not, therefore, be surprised by the findings of the extended mind, cognitive integration and enactivism. Not everyone is convinced that all mental phenomena are continuous with the rest of the world. For example, intentionality is often formulated in a way that makes the mind discontinuous with the rest of the world. This is a consequence of Brentano's formulation of intentionality, I suggest, and can be overcome by revealing that the concept of intentional directedness as he receives it from the Scholastics is quite consistent with the continuity thesis. It is only when intentional directedness is conjoined with intentional inexistence that intentionality and content are consistent with a discontinuity thesis (such as Brentano's thesis). This makes room to develop an account of intentional directedness that is consistent with the continuity thesis in the form of Peirce's representational principle. I also argue against a form of the discontinuity thesis in the guise of the derived/underived content distinction. Having shown that intentionality is consistent with the continuity thesis I argue that we should focus on intentionality and representation as bodily enacted. I conclude that we would be better off focussing on representation and intentionality in action rather than giving abstract functional accounts of extended cognition.

Keywords Cognitive integration · Enactivism · Extended mind · Intentionality · Intentional directedness · Naturalism · Representation

The author thanks Andy Clark and Julian Kiverstein.

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1 Introduction

Elsewhere I have argued for a position called cognitive integration (Menary 2007). At the heart of this position is the thesis that our cognitive capacities include manipulating the environment. A central strand in the argument for cognitive integration is a thesis of continuity: manipulative capacities, such as a spider's capacity to catch prey by constructing, maintaining and manipulating her web, are continuous with cognitive manipulative abilities, such as my capacity to think by constructing, maintaining and manipulating representational systems.¹

The continuity thesis at the heart of cognitive integration requires that there is no deep metaphysical discontinuity between the mind and the world. Cognitive capacities are not intrinsically different from other kinds of capacities found in the natural world; consequently to be a cognitive integrationist is to be a thorough-going naturalist. This position seems to me to be (largely) consistent with the central claims of the extended mind (Clark 1998, forthcoming; Hurley 1998; Rockwell 2005; Rowlands 1999, 2006; Wheeler 2005, forthcoming, Wilson 2004), enactivism (Hutto 2008; Noë 2005; Thompson 2007) and embodied cognition (Gallagher 2005).

A position on the mind which endorses the continuity thesis faces what some see as an insurmountable hurdle: the mind is discontinuous with the rest of the world, because mental and cognitive capacities are not like other biological or physical capacities; metaphysically speaking they are of a different order. This kind of discontinuity thesis is quite familiar from sixteenth and seventeenth century metaphysics when Galileo made the radical

¹ This is argued for at length in Menary 2007, especially Chaps. 4 and 5.

distinction between primary and secondary qualities and Descartes made the equally radical distinction between *res extensa* and *res cogitans*.

Fully naturalised philosophy of mind ought to have no truck with the radical thesis of the discontinuity between *res extensa* and *res cogitans*. Yet one does not need to be a thorough going dualist to endorse a discontinuity thesis. You can be a hard nosed physicalist and still demand, with Brentano (no physicalist he), that there be a mark of the mental (or cognitive) that allows us to definitively distinguish between minds and the rest of reality. One might argue that minds are continuous with the rest of reality in that they are at bottom composed of the same physical stuff. Nevertheless one should avoid any stronger thesis of continuity on pain of idealism and/or pansychism. Then we still regard minds as being a special class of phenomena quite different from the rest of reality.

And yet, as a fully naturalistic philosopher one ought not to think that mental or cognitive phenomena are discontinuous with any other kind of complex physical phenomena. Just as the chemical is continuous with the biological, so the cognitive is continuous with the biological. Naturalistic philosophers ought not to find peculiar the thought that just as we find organisms such as the spider with capacities to create, manipulate and maintain webs in order to catch prey, so we find organisms such as humans with capacities to create, manipulate and maintain representational systems in order to think.

In this paper I intend to take a leap at the hurdle. Surprisingly one way of getting over the hurdle is to return to the Aristotelian–Scholastic roots of the concept of intentionality. The concept of intentionality is derived from Brentano’s famous formulation as the ability of mental acts to be directed at an object. It is usually assumed that Brentano derived his concept of intentionality from the Scholastics² and they from Aristotle. However, recent exegetical work (Hedwig 1979; McDonnell 2006) has shown that the Scholastic conception of intentionality differs considerably from Brentano’s and involves two distinct uses of the term *intentio* (*intentio voluntatis* and *in esse intentionale*), for voluntary intentional act and intentional object, respectively. Brentano takes the intentional directedness of the intentional act and combines it with the intentional indwelling of the form of an object, thereby deriving a single concept of intentionality. Whereas, contemporary philosophy tends to sharply distinguish between intention as a voluntary act and intentionality as the directedness of the mind, despite the fact that intentionality as directedness is derived, via Brentano, from the scholastic concept of the intentional directedness of a voluntary act.

² Brentano himself claims as much in several places.

Furthermore the contemporary metaphysics of intentionality is derived from Brentano’s concept of intentional inexistence (often misunderstood in the literature) and this concept is supposed to be directly derived from the Scholastics, who in turn derived it from Aristotle. However the Aristotelian–Scholastic concept of *in esse intentionale*, or intentional indwelling of the form of an object requires a metaphysics of continuity for the form of objects that exist (*in esse naturale*) and the forms that exist in the soul³ (*in esse intentionale*). Brentano follows post-Cartesian philosophy in assuming that there is a metaphysics of discontinuity between what is in the mind and what is outside of the mind. Hence, ‘Brentano’s thesis’ as it has become known, holds that intentional relations occur only between mental states and objects immanent to consciousness, whereas one does not find intentional relations between physical entities—I shall call this Brentano’s discontinuity thesis.

On the one hand, Brentano’s discontinuity thesis is contested by naturalistic philosophers—who argue that there are physical systems that exhibit intentionality. Yet on the other hand, although the structure of intentionality (as directedness at an object) is retained, it is often retained along with the discontinuity thesis (that the contents of minds are of a different order to the contents of the rest of the world). This is an error I suggest and a properly naturalistic theory of mind and intentionality will eschew it.

The argument of the paper is distributed between three sections, in the first I examine the Aristotelian–Scholastic concepts of *intentio voluntatis* and *in esse intentionale* and look at Brentano’s development of them. I shall then look at how Brentano’s concept of intentionality as intentional inexistence continues to influence contemporary accounts of intentionality, because even naturalists are committed to a version of Brentano’s discontinuity thesis when they attempt to describe a special kind of mental content (often called underived content or original intentionality).

In the second section, I shall outline an account of intentionality which is consistent with the continuity thesis. It allows that there are biological instances of intentional directedness in animals without these being rich in content; and that these are continuous with cultural/conventional instances of intentional directedness which are content rich. The continuity between the basic and rich instances of intentional directedness is similar to that found in the Aristotelian–Scholastic concept of the intentional act: an organism is intentionally directed at an object for some further end. Peirce’s representational principle provides the conditions under which something becomes intentionally directed at an object (represents it). I also argue against Adams and Aizawa’s formulation and use of the derived/

³ This is a poor translation of the Greek *Psyche* which is also the root of the Latin *Psyche* and the root of our Psychological.

underived content distinction to undermine the extended mind. It is a covert form of the discontinuity thesis and, furthermore, it is an implausible distinction on independent grounds.

In the third section I argue that the account of intentionality given in the second section is quite consistent with the extended mind, cognitive integration and enactivism because it is not committed to the discontinuity thesis. What it shows is that if there is such a thing as content, or that which is in-formed, then it is really ubiquitous and does not have a special place in our ontology. However, I also make a case for the focus of extended, integrated and enacted accounts of cognition to be on how we enact intentionality and representation and not on whether we can understand the (extended) mind in abstract functional terms.

2 Extending Towards: Intentional Act and Intentional Object in Brentano's Account of Intentionality

In this section I argue that we ought to retain from the scholastics the notion of intentional directedness as directed at an object for some end. This is a metaphysically harmless notion, examples of which can be found ubiquitously in the animal world and which is entirely consistent with the continuity thesis (as I'll show in the next section in my discussion of Peirce's representational principle). I also argue that we should reject Brentano's notion of intentional inexistence as the content or object of a thought intentionally contained within itself. This notion of intentionality sponsors a discontinuity thesis (often referred to as Brentano's thesis) and contemporary versions of it hold that the mark of the mental is a special kind of mental content that is distinct from other kinds of content.

The current concept of intentionality, in both the analytic, phenomenological and naturalistic traditions has roots in Brentano, who based the concept on the Scholastics and through them Aristotle. The original Latin word *intentio* (or *in + tendere*) "to stretch or extend (towards)" is most famously developed by Aquinas and is the root for our term *intentionality*. But there were two distinct concepts of *intentio* present in scholastic thought (which are not distinguished in Brentano's uniform concept): *intentio voluntatis*, or the intentional act, and *in esse intentionale*, or the intentional indwelling of the form of an object in the soul (the intentional object).

Recent scholarship has traced the development by Brentano of *intentio voluntatis* and *in esse intentionale* into a single concept. Therefore I will firstly examine intentionality in terms of the structure of voluntary acts and secondly I shall examine Brentano's use of the intentional indwelling of an object, as the basis of his account of intentional inexistence, or the intentional object as immanent to conscious

acts. In doing so, I shall show that the concept of intentional directedness, as Brentano receives it from the Scholastics, is an ontologically harmless concept and only sponsors discontinuity when it is combined with an ontologically charged thesis of intentional inexistence.

In his lectures on *Descriptive Psychology*⁴ Brentano claims that every conscious act is essentially relational: "The one correlate is the act of consciousness; the other is that which it is *directed upon*" (Brentano 1995, p. 23). Examples of these acts of consciousness include: "seeing what is seen. Presenting what is presented. Wanting and what is wanted. Loving and what is loved. Denying and what is denied etc." (Brentano 1995, p. 24). The central conception of Brentano's descriptive psychology is that all conscious acts, such as seeing, wanting and loving are directed at an object. In describing conscious acts Brentano was very keen to stress that consciousness is always a consciousness *of* something (McDonnell 2006, p. 129)⁵. Note that for Brentano the intentional relation of a thought being directed on an object is a matter of conscious thought. Conscious acts, such as wanting, present themselves as being directed towards their objects (McDonnell, p. 136). The directedness of conscious acts on their objects can be directly intuited by reflecting on the conscious acts themselves (thus, Brentano is the fount from which springs the phenomenological method of Husserl) (Husserl 1900/2001, 1913/1931).

Although Brentano stresses that intentionality is a relation, he goes on to say that the correlates are peculiar because one is real—the act of consciousness—whilst the other is not—the object of consciousness (Brentano 1995, p. 24). Chisholm (1957) gives the following example to make the claim clear: Diogenes' looking for an honest man would still have the same object (an honest man) even if there are no such things. However, this kind of relation to an object never occurs in non-psychological phenomena; for example for Diogenes to sit in his tub there must be a tub for him to sit in. As Chisholm points out although there is a relation between Diogenes and an object in both examples, the psychological relation is of a peculiar sort because it can hold even though one of its terms (an honest man) does not exist.⁶ Consequently, in *Psychology from an Empirical Standpoint* Brentano holds that intentional objects are immanent to consciousness (and thereby the mind), therefore we are not directed towards objects

⁴ The lectures were first given in 1887 (translated as Brentano 1995). *Psychology from an Empirical Standpoint* was published in 1874 (translated as Brentano 1973).

⁵ I am indebted to McDonnell's excellent analysis of Brentano's development of the concept of intentionality. It is by far the clearest and most well argued account I have been able to find.

⁶ Although this is also a property that is exhibited by works of fiction and some paintings, for example.

themselves (conceived of as external physical existents). This is how Brentano develops the concept of intentional inexistence: intentional relations are not the same as real physical relations, such as that between Diogenes and his tub, because one of the correlates, the intentional object, does not exist as a separate entity or thing; it is immanent to the conscious act itself as its object or content.⁷

There is another reason for the development of the concept of intentional inexistence which Brentano takes directly from Aristotle and the Scholastics and that is the intentional indwelling of a form of an object in the soul, but I shall deal with this later in the section. I shall now focus on the directedness of voluntary acts on their objects in scholastic accounts of intention and how it influenced Brentano's concept of intentionality.

As McDonnell points out the Aristotelian–Scholastic concept of intention as directedness towards an object is different from Brentano's conception of the directedness of all conscious psychological acts whether voluntary, cognitive or sensory. This is because the Scholastics distinguished between voluntary forms of intention and cognitive forms of intention. The intentional relation, as understood by the scholastics, occurs only in voluntary acts where I am related to an object as the goal of my action. This is quite consistent with the non-philosophical and legal sense of intention as *I intend to do something*, indeed for the Aristotelian–Scholastic tradition it is the primary sense of intention. In the *Summa Theologica* (article 1 “Whether Intention is an Act of the Intellect or of the Will” of question 12 “On Intention”) Aquinas defines intention in the following way:

Intention, as the very word denotes, means to tend to something. Now both the action of the mover and the movement of the thing moved tend to something. But that the movement of the thing moved tends to anything is due to the action of the mover. Consequently intention belongs first and principally to that which moves to the end; hence we say that an architect or anyone who is in authority, by his command moves others to that which he intends. Now the will moves all the other powers of the soul to the end. Therefore it is evident that intention, properly speaking, is an act of the will.” (Aquinas 1997, p. 272)

The relational nature of intention as Brentano deploys it is taken from the concept of the relational nature of voluntary acts of the will. Yet the Scholastics did not take intentional

acts to be equivalent to acts of consciousness as Brentano defines them (see above). As McDonnell puts it:

The Scholastics, however, did not (and could not) hold the view that all of ‘our conscious acts’ or ‘everything psychological’ ... bear an intentional relation to their objects in the way Brentano suggests. The Scholastics did not regard acts of sensation, for example, as bearing any such intentional relation to their objects. Neither did they regard acts of cognition *per se* as intentional acts. Rather, the Scholastics, strictly speaking, regarded only those acts over which I have at least some degree of control in bringing about and which I execute with at least some degree of foresight as intentional acts, i.e. as acts that ‘consist in a relation that we bear to an object’. (McDonnell 2006, p. 131)

This is a point of great importance for understanding the contemporary concept of intentionality as it is deployed in the phenomenological and analytic traditions. Brentano has taken the concept of intention as relation to an object from the Scholastic concept of intention as a voluntary act, but he has applied it to all conscious acts whether voluntary or not. He has then combined the concept of intention as relation to an object, stripped of its voluntary component, with the second Scholastic concept of intentional indwelling (in *esse intentionale*), which together forms the core of the concept of intentional inexistence (which Brentano later rejected, maintaining only that intentionality was directedness at an object). This conflation of two different senses of intention into one is the root of all contemporary accounts of intentionality, whether phenomenological, analytic or naturalistic.

Despite the fact that Brentano has removed the Scholastic concept of intentional directedness from its voluntary setting, we can see that intentional directedness is an ontologically neutral concept. Intentional directedness is not an ontologically ‘special’ relation—animals, for example, can be intentionally directed. What the concept of intentional directedness removed from its voluntary setting does not give us is an account of how or why the intentional relation gets established. Whereas the Aristotelian–Scholastic account of the intentional act does give us an account, the animal becomes intentionally directed at an object for some further end.⁸ Such an account of intentional

⁷ Later Brentano distanced himself from the concept of intentional inexistence whilst retaining the core concept of intentionality as directedness, see for example Runggaldier: “it is well known that Brentano distanced himself in the course of time from the doctrine of intentional inexistence without, however, discarding the doctrine of intentionality.” (Runggaldier 1989, p. 98).

⁸ Brentano was interested in establishing a descriptive psychology of acts of consciousness. Hence he was not interested in this question. Naturalistic philosophers typically are interested in the question. He was interested in the description of psychological acts such as wanting as being directed at something else, he was not, strictly speaking, interested in the fact that you want something for some reason or for some further end which establishes the aim of the intentional act.

directedness is consistent with the continuity thesis, naturalism and extended, integrated and enacted accounts of cognition and this will be the kind of account I shall develop in the next section.

Before doing so I shall look at the next step in Brentano's development of the concept of intentionality. This is to combine the thesis of intentional directedness with an ontological thesis about intentional objects or content.

Every psychological phenomenon is characterised by what the Scholastics of the Middle Ages called the intentional (or mental) inexistence of an object, and what we might call, though not wholly unambiguously, reference to a content, direction towards an object (which is not to be understood here as meaning a thing), or immanent objectivity. Every psychological phenomenon includes something as object within itself, although they do not all do so in the same way. In presentation something is presented, in judgement something is affirmed or denied, in love loved, in hate hated, in desire desired and so on. (Brentano 1973, p. 88)

This famous passage has served as the basis for many discussions of intentionality. There are five different descriptive terms that are applied in this passage: mental inexistence, intentional inexistence, immanent objectivity, reference to a content, direction towards an object. De Boer (1976) and McDonnell (2006) both note that the first three descriptions are synonymous; they describe psychological/conscious acts as having a content. This content is mental, immanent or intentional (De Boer 1976, p. 6), as opposed to a non-mental content such as a really existing thing. The last two descriptions indicate the relation or directedness of a psychological/conscious act to its content/object. The first three descriptions are bound to the thesis of intentional inexistence. It is an ontological thesis about mental contents/objects and is distinct from the thesis expressed in the final two descriptions of intentionality as the directedness or relation of psychological/conscious acts towards objects⁹ (De Boer 1976; McDonnell 2006; Spiegelberg 1994).

Intentional inexistence commits us to a kind of internalism about the mind and serves as the basis for Brentano's discontinuity thesis. The directedness of thought has no such ontological implications and is quite consistent with externalism and naturalism. This is because whatever is the object/content of thought could well be external i.e. not immanent to the mind. Furthermore, there is nothing in the description of intentionality as directedness that indicates that it cannot be exhibited by physical

systems. However, it is unclear how intentional directedness is possible without the aim being for some end. This was something that the Scholastics were well aware of and accorded with the sense of *intentio* as extending towards or aiming at. By contrast Brentano decided to ignore it, because he was focussed on intentional acts as internal mental events and not as acts of an agent who intends to do something. Instead, intentionality became a relation between mental states of a conscious subject and mental contents or objects internal to the mind. Far from the intentional relation being exhibited by embodied agents, including animals, intentionality was now a properly metaphysical category. The extending towards or aiming at now occurs only in the mind between the mental state and its mental content or object.

This is a natural point at which to show in a bit more detail how the thesis of intentional inexistence sponsors a discontinuity thesis. I will also show that Brentano's thesis of intentional inexistence is derived from the Aristotelian–Scholastic concept of *(in)esse intentionale*, but that he drops the continuity at the heart of that concept. Finally I will look at how the Aristotelian–Scholastic concept of intentional act sponsors a continuity thesis. This will serve as the basis of a discussion of the attempt to naturalise intentionality. For it would appear to be next to impossible to naturalise intentionality if one maintains any of the vestiges of Brentano's discontinuity thesis and I think that many naturalists continue to be influenced by Brentano's ontological claims despite their endorsement of naturalism.

Brentano is very clear in *Psychology from an Empirical Standpoint* that intentional inexistence marks off the mental from the physical¹⁰:

This intentional in-existence is characteristic exclusively of psychological phenomena. No physical phenomena exhibit anything like it. We can, therefore, define psychological phenomena by saying that they are those phenomena which contain an object intentionally within themselves. (Brentano 1973, pp. 88–89)

Brentano is also clear that he thinks the concept of intentional inexistence is derived from Aristotle (and the Scholastics who follow him):

Aristotle himself spoke of this psychological indwelling. In his books on the soul he says that the sensed object, as such, is in the sensing subject; that the sense contains the sensed object without its matter; that the object which is thought is in the thinking intellect. (Brentano 1973, p. 88 n.)

⁹ Unless we already assume with Brentano that the objects are mental contents.

¹⁰ The concept of intentional inexistence is that conscious acts are intentionally directed at an object immanent to consciousness and not simply the ability to think about things that don't exist.

Aristotle held that the form of an object existed in the soul of the perceiver. When one perceives an object, the perceptible form of that object, without its matter, resides in the soul of the perceiver (as an image), the active intellect can then act upon that form—this is Aristotle’s theory of cognition. Hence, on the Aristotelian–Scholastic way of thinking we really are *in-formed* when we perceive or think about something. This is the root concept of the contemporary idea of mental content, a mental content is something which resides in the mind of a cognitive agent, or a conscious agent, either as the content of a mental representation, or as the content of experience.

However, the major difference between Aristotle and the Scholastics on the one hand and Brentano on the other is that, for the former, the forms dwelling in the soul were not to be thought of as distinct from the form of the objects external to the soul (in *esse naturale*). They were the same, which is why Aristotle says that in thinking the thought and the object become identical. The difference between intelligible forms (species) in the soul and those in reality is that in the latter the form is hylomorphically combined with matter, whereas in the soul it is not. As he says in *De Anima*:

The thinking part of the soul must therefore be, while impassible, capable of receiving the form of an object; that is: must be potentially identical in character with its object without being the object. (Aristotle 1984/1995, p. 682)¹¹

So, of course for Aristotle the intelligible forms abstracted from their objects depend upon the soul and intellect for their existence, but it does not follow that they thereby constitute a radically different ontological category (as mental objects or contents) from the forms and modes of accidents (properties) as they are found in real existent things (in *esse real*).

Brentano, of course, thinks that mental contents do constitute an entirely separate ontological category from physical things (as demonstrated in the quotation above). He moves from an Aristotelian metaphysics of continuity to a post Cartesian metaphysics of discontinuity. This is illustrated further by Brentano’s wholesale adoption of the distinction between primary and secondary properties for his account of perceptual experience. As McDonnell puts it:

Unlike St Thomas and the Scholastics, however, Brentano regards the abstracted form of sense, this intentional or mental object of perceptual consciousness, as *the end term* of outer perceptual-sense experience (or of sense judgement) in *PES*

[Psychology from an Empirical Standpoint].” (McDonnell 2006, p. 158)

This is because Brentano holds that colours and sounds exist only as perceptual experiences immanent to consciousness. Outside of consciousness are physically describable objects such as light rays and sound waves.

Intentional inexistence sponsors a discontinuity thesis because it relies on an ontological category of mental contents which are unlike anything in physical reality, they exist only in the mind. Whereas for Aristotle intelligible forms are not unlike natural forms, except that they are universal and are abstracted from existing things, existing without their matter in the soul. It should, I hope, be clear that naturalists should avoid the discontinuity thesis that Brentano’s concept of intentional inexistence sponsors.

This returns us to the Aristotelian–Scholastic concept of the intentional act: the concept of intentionality as directed towards an object for some end. There is nothing ontologically strange about such a relation. For example, a trait of an animal might have the function of detecting prey; it is intentionally directed at an object for some end: prey detection. Furthermore the intentional directedness at the object is end directed where that end is to be acted upon by catching the prey and the trait is co-ordinated with other traits to achieve that outcome. Unlike the Aristotelian–Scholastic tradition we don’t think that the end functions as a final cause, the traits evolved under the pressures of natural selection; but we do think that the traits can be end directed, i.e. intentionally directed. We also expect that the traits will sometimes be intentionally directed at an object when there is no object present, perhaps the animal is highly attuned to movements that indicate the presence of a predator upon the detection of which the animal flees (despite the fact that the movements are not always caused by predators). We shall have to wait until the next section for a fuller development of these claims.

We might note, to avoid confusion later, that what is important about this setting for intentional directedness is that intentionality is connected to other traits, behaviours and the environment of the organism. Intentionality is not a property of mental acts as it were bracketed off from all other traits of the organism, nor from the complex environment (including complex social and group environments) in which the organism is situated. It is an artefact of post-Cartesian modern philosophy that we try to describe the mind as an entity independent of its relationship to the rest of the organism and that organism’s environment. This is something that Aristotle, for all his other faults, would never have considered.

Having exposed the strong metaphysics of discontinuity in Brentano’s account of intentional inexistence, I now want to argue that it continues to have an undue influence

¹¹ Bekker numbering reference: 429 a 15–18.

on some contemporary accounts of intentionality and thinking about the mind and consciousness, even naturalistic accounts; and that this is primarily because the metaphysics of discontinuity is at the root of Brentano's concept of intentionality. In the rest of this paper I shall take it that an account of intentionality that is based on Brentano's discontinuity thesis should be avoided by naturalists and that, instead, a naturalistic account of intentionality should restrict itself to how the intentional direction gets established. By reaching such a conclusion we will, of course, be in a position to see that if we are naturalists and endorse the continuity thesis, then we should not be surprised to find that intentionality and other cognitive traits are extended, integrated and enacted.

As I have argued, the Aristotelian–Scholastic concept of *in esse intentionale* does not sponsor a discontinuity thesis, because a form can exist both in objects (*in esse naturale*) and in the soul of a perceiver and cognitive agent (*in esse intentionale*). However, in Brentano's hands *in esse intentionale* becomes intentional inexistence where an intentional object is immanent to consciousness and the intentional relation of a conscious act to an intentional object is not like that found in nature. This concept of intentionality does sponsor a discontinuity thesis.

Intentionality as directedness at an object (where this object might be a real thing) has a clear sense in a teleological or voluntary setting—I am directed at an object in my striving to attain or otherwise act upon that object. This is distinct from a more controversial ontological thesis that conscious acts are directed at mental objects which are immanent to consciousness. So sensory, cognitive and other mental states/acts/processes will be intentionally directed at an object in the first sense, but it is less obvious why we should think that the second sense of intentional as the conscious mind's direction at objects internal to itself should apply to all mental states/acts/processes.

Intentional directedness as being aimed at some object for some purpose is not a metaphysically strange phenomenon and for this reason I shall take it to be a (relatively) uncontroversial kind of intentionality. Indeed the concept of intentionality to be fleshed out in the next section holds just that something has intentional directedness (it is a representation for example) just in case it is directed at an object for some end. Whilst some representations can be intentionally directed at objects that do not exist (such as unicorns) I do not see this as a reason to make the unwarranted metaphysical move of supposing that all intentionally directed thoughts must be directed at an object (or content) which is immanent to the mind (has intentional inexistence).

Nor do I think a secondary version of this discontinuity thesis is warranted where thoughts have a different kind of content from anything else such as natural language for

example. This distinction is sometimes used to argue against the extended mind (Adams and Aizawa 2001, 2008, Adams and Aizawa forthcoming). Written and spoken sentences of natural language, it is claimed, do not have the underived or original content that attaches to proper mental contents. Mental contents are said to have “original intentionality” while natural language sentences have a representational content that is merely derived from the former. I shall address this explicitly naturalistic version of the discontinuity thesis in the next section.

If one wishes to argue that there is a special form of intentionality and that there are special mental contents and objects then one is on the same questionable metaphysical ground as Brentano. If there are such things as information, content and representation, then they must really be ubiquitous and we should investigate the phenomena as we find them and not by ‘ghettoising’ a sub class of strictly mental forms of intentional directedness, representation and content. Consequently, the next section gives an account of intentionality that is consistent with the continuity thesis and warns against naturalistic accounts of intentionality and content that endorse discontinuity when they should endorse continuity.

3 Intentional Acts, Naturalism and Continuity

In the first section I argued that those seeking a home for intentionality in the natural world should avoid the discontinuity thesis inherent in Brentano's formulation of the concept. I also argued that the notion of extending towards, or intentional directedness, can be retained and explained in terms broadly consistent with naturalism. Intentional directedness can be observed in the end directedness of (some) animal behaviour. This is consistent with the concept of intentional act of the Aristotelian–Scholastics as I discussed it in the previous section: We are intentionally directed at an object for some further end.

For this reason, intentional directedness turns out to be a more complex matter than the usual two term structure implies (intentional act and intentional object at which the act is directed). Some philosophers, for example Fodor, think that intentional directedness or representation¹² is a simple causal relationship. We might say that a cause is directed at its effect, but this does not make the directedness intentional directedness. This is because intentional directedness is normative—it has a goal—it is iterative, or repeatable, and the conditions under which it is iterative are not strictly causal. Peirce and Millikan recognise this in

¹² Assuming that they are the same thing, I shall assume that representation is at least a form of intentional directedness, because representations are directed at an object or refer to an object.

their accounts of representation. However they are not committed to the discontinuity thesis. They do not hold to a thesis like intentional inexistence, or that there are kinds of content that are strictly mental and other kinds which are not. I shall now elaborate the conditions under which an intentional act (such as a representation) is established. I have discussed these conditions elsewhere (Menary 2007 and in progress) and labelled them as the Peircean principle or Peirce's representational principle. In the context of this discussion I draw the conditions to the reader's attention because they demonstrate the establishment of the intentional/representational relation for some further end.

The Peircean principle maintains that any representation (or intentionally directed trait) must involve the following three components: the first condition is that the vehicle has certain intrinsic or relational properties that make it salient to a consumer. The second condition is that the vehicle is exploited by a consumer in virtue of its salient properties, thereby establishing the vehicle's representational function (the function of representing an object/environmental property). The third condition is that a representational triad (a genuine representation) is established only when the representational function is recruited for some further end (such as the detecting of food). The recruitment of the representation in virtue of its function is established as a norm; Millikan (1984, 1993) shows how such norms are established as proper biological functions, but the norm might very well be conventional. Representations established by biological norms I call teleonomic representations, and those established by convention I call teleological representations.

The conditions can be unpacked in the following way:

- (1) A token vehicle Φ is a representational vehicle when it has properties that can *potentially* be exploited by a representational consumer. For example: Φ is salient because it is reliably correlated with an object/environmental property X, or with objects/environmental properties X, Y, Z....
- (2) Φ has a representational function when its salient features are exploited by some consumer Ψ . For example: Φ has the function of representing X for consumer Ψ , because Φ is reliably correlated with an object/environmental property X.
- (3) Φ represents X for consumer Ψ in the performance of some biological function (or for some conventional norm).

The conditions for representation are simple: a vehicle has properties that are potentially exploitable by a consumer, call these its representationally salient properties. It is consumed in virtue of its salient properties. However, for the repeatability of this representational triad we need the co-ordination of producer and consumer mechanisms, a

vehicle is produced which is consumed for some further end. This process is established as a teleonomic norm if it is adaptively successful as in Millikan's bee dance example.

The very same conditions for representation are the basis for teleological representational triads and repeatability requires the co-ordination of producer and consumer. However, the process is established as a teleological norm by being part of a conventional system such as language or mathematics. For our current purposes the Peircean principle demonstrates the complexity involved in establishing an intentional/representational relation. It requires the co-ordination of producer and consumer mechanisms for some further end, therefore it requires either the co-ordination of mechanisms within the organism, or it requires the co-ordination of a mechanism in the organism with a mechanism in that organism's environment.

The Peircean principle is valuable because it allows us to explain how representation works in both natural and social environments, by showing that the fundamental conditions for representation are the same for teleonomic and teleological representations. It makes no commitment as to whether representational triads are internal, external or distributed across body and world. Teleonomic representations and teleological representations should not be thought of as distinct categories, they are continuous with one another. There is a difference in that teleological representations will tend to be more flexible and open-ended. Teleological representational triads are subject to growth and development; they are corrected over time by self-controlled actions, as opposed to natural selection. However, their representational function is still established by the co-ordination of consumer and producer: a vehicle is produced which is consumed for some further end. Consequently the Peircean principle is an account of intentionality that is based in a principle of continuity not discontinuity.

However, not all naturalistically inclined philosophers of mind are able to avoid the metaphysics of discontinuity. One way in which this manifests itself is in the distinction between underived and derived intentionality, or content. Readers of this special issue will likely be aware that this very distinction has been used against proponents of the extended mind, primarily by Adams and Aizawa (2001, 2008, forthcoming). What could Adams and Aizawa and Brentano possibly have in common I hear you ask? Brentano was committed to discontinuity because of the thesis of intentional inexistence: intentional acts are related to objects or contents that are immanent to the mind. This marks off intentional contents as special and different from any other kind of content one might otherwise find in the world.

Adams and Aizawa (following Searle 1983) hold that mental contents are always and only underived contents, this marks mental content off as special and different from other kinds of content one might find in the world (such as derived content). For Brentano and Adams and Aizawa it's the same difference!

Adams and Aizawa define underived content in the following way:

Underived content arises from conditions that do not require the independent or prior existence of other content, representations, or intentional agents. (Adams and Aizawa 2008, p. 33)

What motivations are there for positing underived content?

Part of what motivates the view that cognitive processes involve *underived* representations is that such content appears to be required to explain lone thinkers. Some hundreds of millions of years ago, the brain of some primitive fish evolved in such a way as to incorporate a fundamentally new type of state. That primitive fish's brain contained a thought or belief. That primitive fish may have thought it was about to be attacked, or that there was something to eat nearby. One can speculate about what that first primitive content was. (Adams and Aizawa 2008, p. 32)

I'll spare the reader from Adams and Aizawa's further attempts at specifying the content of the first lone 'fishy' thoughts. But we are supposed to be impressed with the need to explain these first lonely thoughts of ancient fish by positing underived content. Similarly a lone Orangutan eating fruit seems only to be explicable by Adams and Aizawa if she has cognitive states about the fruit with underived content (2008, p. 33–34). I do not find the same need to explain these phenomena by invoking underived content, there is nothing in these examples that cannot be accounted for by the Peircean principle and as we have just seen the Peircean principle does not require us to make a distinction between derived and underived representation. Furthermore, I don't see underived content as providing a very good explanation of these cases. The Peircean principle explains them much better: the Orangutan is intentionally directed at the fruit for a further end—to eat it. The fish is intentionally directed at predators because it detects certain kinds of movement, and this is consumed by mechanisms which initiate avoidance behaviours. (Notice that we do not have to specify the intentional directedness of the fish in terms of some form of conceptual content—unlike Adams and Aizawa who, implausibly, attempt to specify the content of those primitive thoughts.)

Perhaps Adams and Aizawa are thinking of cases of representation which are more obviously brain bound

(although this would make their case close to question begging).

Pioneering work by David Hubel and Torsten Wiesel revealed the response properties of cells in the lateral geniculate nucleus and area V1 as well. This has culminated in an extensive theory of hypercolumns that appear to enable a more or less detailed combinatorial representation of an organism's visual field.... We would not want to claim that these neurons are representations simply in virtue of their causal connections to environmental stimuli, but we do think they are likely to turn out to be representations. These considerations seem to us to provide defeasible reasons to accept what cognitive psychologists typically presuppose, namely that cognitive processes involve representations. (Adams and Aizawa 2008, p. 33)

Note that Adams and Aizawa end this quotation with the much weaker claim that cognitive processes involve representations. That point aside, what are we to make of the idea that a V1 neuron could represent something independently of any other 'representations'? The little V1 neuron that is excited by the presence of a vertical line in the visual field has a representationally salient feature that is consumed only as part of a much larger aggregate of neurons that are consumed as a visual map. Understanding the function of the V1 neuron depends upon its relation to other V1 neurons in the hypercolumn. Consequently it is not a 'representation' independently of other 'representations'.¹³

Therefore, it is an open question which representations are supposed to be entirely independent of all other content, representation or other intentional agents. Adams and Aizawa would commit naturalistic accounts of intentionality and representation to an extreme form of atomism.¹⁴

We might be motivated to accept the existence of underived content because we think that some content is derived directly from the content of something else. Derived content would then be content that is derived from some prior content. Underived content is not derived from some prior content, but from some other non-contentful relation, such as a causal relation. Consequently Adams and Aizawa are quite happy to "suppose that thoughts have non-derived semantic content, but that natural language has merely derived content" (Adams and Aizawa 2008, p. 34).

The so-called distinction between derived and non-derived content cannot carry the argument alone. The mere

¹³ I doubt whether talking about the excitation potentials of single neurons equates to representational talk anyway (see Clark 2005, forthcoming for similar worries).

¹⁴ The Fodorian credentials of Adams and Aizawa are revealed here.

stipulation that the content of language is derived from the contents of thoughts is not an argument. There is no motivation given for the distinction between underived thought content and derived linguistic content. If I stipulate that all linguistic content is derived from prior mental states with underived content then I must accept that the contents of all of my thoughts must come through non-linguistic channels and that language is simply an output. Despite the fact that this is an absurdly reductionistic picture of language, one might reject it on the grounds that my thoughts are often derived from linguistic channels, either by conversing with other people or by reading.

There might be a developmental story, vaguely Fodorian in provenance, which argues that a cognitive agent's mental symbols get their contents by first standing in causal relations to things. (Therefore perhaps all the first contents are derived through perceptual channels.¹⁵) But even the most enthusiastic Fodorian must worry about where the content of the mental symbol for Pi comes from; because it is unclear what my mental symbol could be causally connected to. By contrast it seems entirely reasonable to suppose that my concept of Pi comes from being taught that it is a mathematical constant which represents the ratio of a circle's circumference to its diameter (and which is the same as the ratio of a circle's area to the square of its radius). Therefore, it seems entirely reasonable to claim that the content of the concept of Pi was acquired through linguistic channels and I would be at a loss to otherwise explain how I acquired it (unless I wanted to claim that it was innate).

I think it gets even worse for Adams and Aizawa when we ask what is it about derived content that disallows it from being the content of cognitive representations? Remember that Adams and Aizawa claim that underived content is the only kind of content that cognitive processes/representations possess. What kind of claim is this? Is it a merely stipulative claim? Or is it a claim based upon the difference in the nature of the content? If the first then it is an exceptionally weak argument and I don't see that it can be taken seriously as the basis for an objection to the extended mind. If it is based on the second then we are owed an account of the difference in the nature of the contents.¹⁶ We have already seen that if the distinction is based upon a claim about order of priority (underived comes first) then it makes the acquisition of contents for concepts like Pi very puzzling. If it is based upon the need to explain 'thoughts' of animals that are not socially

engaged then we can explain those 'thoughts' via Peirce's representational principle which does not invoke the distinction between derived and underived content. If it is based in a difference between types of content, underived content is different not just in its causal heritage but also in nature (they really are different kinds of content with different properties). I think this distinction is even more difficult to maintain.

For example, if I think that *the Harbour Bridge looks beautiful in the sunlight* and I say (out loud) "the Harbour Bridge looks beautiful in the sunlight", what is the difference in content? The harbour bridge looks beautiful in the sunlight looks like the *same* content whether I am quietly thinking¹⁷ this to myself or saying it out loud to my companion. Why is the content of the former so different from the content of the latter such that only the former can count as cognitive? Adams and Aizawa have no answer to this except to beg the question: the contents of thoughts are in the head and that makes them cognitive.

There is one more absurdity that we can generate from Adams and Aizawa's position. When I am consciously thinking in language (in English or in German), I am not really thinking, because the content of those sentences of English is derived content only. Presumably the contents of those quiet off-line conscious thoughts is derived from some unconscious processes with underived content which are genuinely cognitive (they are thoughts). So we must conclude that a large portion of our conscious thinking is not real thinking because language has only underived content. This would be a surprising consequence for Adams and Aizawa and one that I hope that they would not endorse on pain of the absurdity of the conclusion that conscious thoughts are not really thoughts at all. However, if they do reject it then they must also reject the distinction between derived and underived content from which the consequence is generated.

Therefore I propose that there is no difference between derived and underived content and that the distinction is a metaphysical dangler that has no place in a naturalistic account of intentionality, representation, thought and language. The argument, such as it is, is based on a principle of discontinuity: intentional or representational relations that are cognitive/mental can only be of one kind. One does not find intentional and representational relations of this kind elsewhere. Naturalists should reject the discontinuity thesis and embrace a scientific metaphysics where the bio-cultural phenomena of intentionality and representation are found to be the very same kind of thing wherever they are found.

¹⁵ Although I am at a loss to understand what the mental symbol for 'prime number' is asymmetrically dependent upon.

¹⁶ See my 2006 for more on this issue.

¹⁷ I might also be quietly saying it to myself in my head as it were.

4 The Continuity Thesis: Extending, Enacting and Integrating

Now that we have seen off an objection to the extended mind and cognitive integration that employs a version of the discontinuity thesis concerning content, we are in a position to see clearly how the extended mind, enactivism and cognitive integration can be supported by the continuity thesis. The continuity thesis marks out our cognitive capacities as continuous with the rest of nature. It follows that we should avoid accounts of intentionality and representation that involve a thesis of discontinuity between those phenomena and the rest of nature. In doing so we allow that intentional directedness for some end is quite ubiquitous in the animal world. Because of the naturalist principle of continuity, more sophisticated forms of intentional directedness—such as teleological representational triads—are nevertheless continuous with these more basic forms of intentional directedness. This approach to intentionality is consistent with cognitive integration, the extended mind and enactivism which either explicitly endorse, or are consistent with the continuity thesis.

I'll say something about how that is the case in this final section, and briefly why we ought to turn our collective focus onto understanding intentionality and representation in action, rather than trying to formulate the extended mind as a kind of abstract functionalism.

Assuming Clark is right, then the mind is extended¹⁸ across brain, body and world. Does it follow that intentionality is extended if the mind is extended? If intentionality is to be understood as the organism's body extending towards things in the world, then there is an obvious sense in which the mind is extended. I think this is a claim that has not yet been made explicit in the literature on the extended mind; the mind is extended toward an object and this extension is achieved through the body, through its organs, limbs and senses (this is well expressed by Gallagher (2005) in his account of the body schema). Hence intentional directedness can be achieved through the action of the body. Merleau-Ponty (1945) held such a position and more recently Mark Rowlands (2006). For Merleau-Ponty an embodied subject is action-oriented to the world and has an intentional relation to that world, even before it starts to reflect on it. We can, therefore, derive from Merleau-Ponty a kind of pre-reflective embodied intentionality, one that does not yet involve conceptual content. Some of our embodied engagements with the world are also intentional engagements. Following

¹⁸ The interpretation of this word is very important. It does not, on my reading, mean that the mind is first in the head and then extends out into the world. It means that the mind *is* extended across the brain, body and world. I take it to be synonymous with distribution and integration.

Gallagher body schemas can be intentionally directed. A body schema is “a system of sensory-motor capacities that function without awareness or the necessity of perceptual monitoring” (2005, p. 24). Body schemas can be part of a goal-directed activity, such as catching a ball in a game of cricket. There are higher level goals and intentions involved in this action; we are not intentionally directed at the movements of our body, but through them at the ball. Hence, we are not aware of the functions of the body schema in governing our posture and movement, in so far as these are part of a goal directed activity.

There are also body schemas and motor programmes (collections of body schemas) that are completed as bodily manipulations of the environment. So we might say that body schemas are the embodied forms of manipulations (Menary 2007). When we are creating, maintaining and manipulating the environment we are intentionally directed at the environment and the manipulations are normative: they achieve some end and conform to the conventions governing some system of representation such as language or mathematics. The co-ordination of body and environment as accomplishing cognition or thought is governed both by body schemas and biological and cultural norms. Therefore, manipulations of external representations are just another example of body schemas that are governed by norms. Cognitive integration and the extended mind are interested in the ways in which we create, maintain and manipulate external representational vehicles to complete a variety of cognitive tasks. They can benefit from an embodied account of intentional directedness because the integration of body and environment is grounded in the intentional directedness of bodily manipulations of the environment. If body schemas and bodily manipulations are intentionally directed, and we hold to the continuity thesis as good naturalists, then cognition is integrated and the mind is extended.

This, of course, also sounds quite close to the central ideas of enactivism: that we should understand intentionality as an active perceptual coupling between an organism and its environment. Enactivism is based on the notion of cognition as emerging out of embodied action. Cognition emerges from processes of perception and action that give rise to recurrent sensorimotor patterns.

We propose as a name enactive to emphasize the growing conviction that cognition is not the representation of a pregiven world by a pregiven mind but is rather the enactment of a world and a mind on the basis of a history of the variety of actions that a being in the world performs. (Varela et al. 1991, p. 9)

Hutto's version of enactivism (Hutto 2008) is also consistent with the continuity based account of intentionality I have formulated in this paper. It involves organisms being

intentionally directed at aspect of their environment in ways that are *not* contentful i.e. their intentionality is not to be understood as a property of their mental states or mental representations. However, there is determinate intentional directedness, as illustrated by Millikan's bee dance. Hence, the kind of determinate intentional directedness that characterizes perceptual and emotional responding also falls under the Peircean principle.

Integrated, enacted and extended cognitive science converges on the following general view of cognition as the co-ordination of bodily processes of the organism with salient features of the environment, often created or maintained by the organism, allowing it to perform cognitive tasks that it otherwise would be unable to; or allowing it to perform tasks in a way that is distinctively different and is an improvement upon the way that the organism performs those tasks via bodily processes alone.

However, the future direction of research in the extended-enacted-integrated nexus is at a crossroads. Recently the extended mind has been relaunched as a kind of extended functionalism (Clark 2008; Wheeler forthcoming). Clark and Wheeler think that the best way forward in arguing for extended minds is via functionalism. The hope is that a high level functional analysis will yield a version of the extended mind that is immune to criticisms by the likes of Rupert (2004) and Adams and Aizawa (2001, 2008). Wheeler discusses the kind of functional specifications required for an extended functionalist treatment of the mind and cognition:

Rather, the level of functional grain that matters for the presence or absence of cognition must be set high enough so that, other things being equal, a system that exhibits some fine-grained functional trait and one that doesn't both count as cognitive. (Wheeler forthcoming)

Elsewhere I have given reasons for why such a high level of functional abstraction is not likely to yield interesting results (see Menary 2007, pp. 55–60). What I think we should be focussing on is nicely formulated by Wilson:

The shift is one from a focus on “things”, such as representations, to a concern with “activities”, such as the act of representing. Such activities are often bodily, and are often world-involving in their nature.... Rather, what cries out for discussion is the question of just what forms these activities take, and just how they bring about the effects they do. (Wilson forthcoming)

Sutton (forthcoming) also argues for a second wave of the extended mind that is based in *complementarity* and not functional parity: external processes and vehicles can be radically unlike internal ones but nevertheless make

complementary contributions to cognitive processes. This is to focus on cognition as an activity, rather than high level functional analyses as criteria for mindedness.

A thesis of continuity between mind and world allows us to take the (en)active route to explaining cognition. If intentionality is no special hallmark of the mental making it discontinuous with the rest of the world then we should not be surprised to find intentional acts extended across brain, body and world. It would then seem that there is no bar to understanding extended cognitive capacities as capacities for manipulating the environment, for creating, maintaining and manipulating external representational systems—as extended intentional acts. As such we can put the account of intentionality as representation in action to work and that is the best way to get over the hurdle.

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