An implication of cognitive conjointment: From individual to dividual conceptions of self

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Abstract

There is a long tradition of individualism in philosophical conceptions of self. My aim in this paper is to demonstrate that we ought to consider a departure from conceiving of selves in a strictly individual fashion. The extended mind thesis forms the theoretical basis for this claim. This thesis allows for the possibility of cognitive conjointment, wherein two people share (to some degree) cognitive processes. This possibility, so I shall argue, undermines the individualism presupposed by most conceptions of self. Taking the bundle theory of self as my starting point, I demonstrate that cognitive conjointment results in a degree of self conjointment. To account for this possibility, I formulate a dividual conception of self which is compatible with bundle theory and has the added benefit of accounting for cases of 'split brain' patients. As cognitive conjointment seems to lead to self conjointment in other theories of self, I suggest that we ought to consider dividual conceptions of self.

1 Introduction

The traditional view of cognition as something that occurs solely in the brain is increasingly scrutinised. Many argue that we should not limit our understanding of cognition to the brain because some phenomena indicate that cognising actively (as opposed to passively) implicates non-brain parts of the body. For example, when we gesture, we are not merely expressing ourselves through a non-verbal avenue. Verbal communication often relies on gestures in order to formulate thought and its expression.[1] This implies that cognition is constituted by non-brain parts of the body. Proponents of this school of thought argue that we should have an *embodied* understanding of cognition.

Some take it further. Clark and Chalmers argue that there is a sort of biochauvinistic prejudice built into the logic of embodied cognition.[2] Why, they argue, is there a distinction between the body and its environment? If there are phenomena that indicate that cognising actively occurs outside of the body, why should we restrict our understanding of cognition to the human form? Traditionally, cognitive scientists have acknowledged that cognising can 'lean heavily' on various parts of the environment. For instance, parallel distributed processing models of cognising suggest that long multiplication tables function as an important extension for cognising about long multiplication.[3] But proponents of those models fell short of claiming that it played a key *constitutive part* of cognising. Clark and Chalmers presumed they did not do this because of 'biochauvinistic prejudice'—because traditional cognitive scientists arbitrarily understand cognition to be an embodied phenomena, and long multiplication tables are not a part of the body, they arbitrarily conclude that it cannot be a constitutive part of our cognitive process.[4] To avoid this prejudice, Clark and Chalmers suggested a veil-of-ignorance style test called the parity principle:

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[1] David McNeill, *Hand and mind: What gestures reveal about thought* (Chicago: University of Chicago Press, 1986).

[2] Andy Clark and David Chalmers, 'The extended mind', *Analysis* 58, no. 1 (1998): 7–19; Andy Clark, *Mindware: An introduction to the philosophy of cognitive science*, 2nd ed. (Oxford: Oxford University Press, 2014), 195.

[3] James McClelland, David Rumelhart, and Geoffrey Hinton, 'The appeal of parallel processing', in *Parallel distributed processing*, vol. 2, ed. James McClelland and David Rumelhart (Cambridge: MIT Press, 1986).

[4] Clark, *Mindware*, 195.

> 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* (as we claim) part of the cognitive process.[5]

An application of the parity principle to various cases, they contend, suggests that cognising actively occurs outside of the body. From this, they claim that the mind can extend into external physical objects.[6] This is the extended mind thesis (hereafter EMT). In the next section, I shall further explicate the EMT and demonstrate how, in its lights, cognitive conjointment is a distinct possibility. This possibility, and its implications for strictly individual conceptions of the self, is the primary focus of this paper.

2 Extended minds and cognitive conjointment

Clark and Chalmers use two cases in their original argument for the EMT.[7] One of them compares Inga, a 'normal' person who stores standing beliefs[8] in their memory, and Otto, a person with Alzheimer's who stores standing beliefs in their notebook.[9] A slight modification to this case brings out the possibility of cognitive conjointment in the lights of the EMT.

Inga hears that there is a good exhibition at the Museum of Modern Art (MoMA), so she develops a desire to go see it. Using her memory, she recalls that MoMA is on 53rd street. This now occurrent belief is then combined with her desire to go to MoMA, which leads to her walking to the exhibition. Otto has Alzheimer's, which means his memory is unreliable. Therefore, Otto always carries on him a little notebook in which he records information. When he needs to remember information, he consults the little notebook. He hears that there is a good exhibition at MoMA, so he also develops a desire to go see it. He consults his notebook, which says that MoMA is on 53rd street. This now occurrent belief is combined with his desire to see the exhibition and leads to him walking to the museum.

In this example, Otto's notebook and Inga's memory serve a completely analogous function: storing standing beliefs for immediate recall. Per the parity principle, we ought to consider the notebook as a constitutive part of Otto's cognitive process. Therefore, Clark and Chalmers suggest that this case shows that cognition (and by extension, the mind) can be extended into the world. Extrapolating from this case, they suggest four criteria to govern whether nonbiological candidates should be included in an individual's standing belief system:

1. That the resource be readily available and typically invoked;
2. That any information thus retrieved should be more or less automatically endorsed. It should not usually be subject to critical scrutiny. It should be deemed about as trustworthy as something retrieved from biological memory;
3. That information contained in the resource should be easily accessible as and when required;
4. That the information in the notebook has been consciously endorsed at some point in the past, and indeed is there as a consequence of this endorsement.[10]

A modification of this case can show how cognitive processes can become shared.

Suppose that Otto has a wife, Matilda. Matilda and Otto were diagnosed with Alzheimer's at similar times. Because they are married, they decide that rather than having their own notebooks, they will share a notebook. Because they spend almost all of their time together, they store the same standing beliefs in the book. For both of them, the shared notebook could constitute a part of their standing belief system, and so by extension, their cognitive process. It seems it does, for Otto and Matilda's shared

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[5] Clark and Chalmers, 'The extended mind', 8, emphasis original.

[6] Some contest the jump from cognition to mind. In this paper, I shall simply assert that this is a valid move.

[7] Clark and Chalmers, 'The extended mind', 7–8, 12–17.

[8] Standing beliefs are beliefs that you are not currently entertaining, but still hold. These stand in contrast to occurrent beliefs, which are beliefs you are currently holding. For instance, you know that you are breathing. This was a standing belief until you read the previous sentence, for it is now occurrent.

[9] Clark and Chalmers, 'The extended mind', 12–16.

[10] Clark, *Mindware*, 197.

notebook satisfy all criteria. Firstly, as they are always together and both have Alzheimer's, they have easy access to the notebook and use it often. Secondly, Otto and Matilda consult it without hesitation. Thirdly, they normally keep it in their satchel. When they don't, it is (without fail) in the right bedside drawer. Therefore, it is accessible when required. Finally, they were both diagnosed with Alzheimer's at the same time and their Alzheimer's progresses at the same rate. Their doctor (who they see together) suggested the idea to both of them before the disease began affecting their memory. The endorsed the idea and began recording standing beliefs in the book. Hence, it has been consciously endorsed by both of them at the same point.

Otto and Matilda, in the case just described, have the same notebook as a constitutive part of their cognitive process. This implies that they share parts of their cognitive processes; they have the same standing belief system. Let us call this *cognitive conjointment*. This paper argues that cases of cognitive conjointment suggest that strictly individual conceptions of the self might not be tenable, for cognitive conjointment can lead to, as the next section demonstrates, self conjointment.

3 The bundle theory of self

In analytic philosophy,[11] the problem of the self (let us assume that there is indeed one), is concerned with providing an answer to the question 'what is the self?' To put it more formally, the problem is to fill the proposition '*x* is *y*'s self if and only if … ' whereby the ellipsis denotes some logically equivalent phrase.[12] In this paper, I take the psychological bundle answer to this question (hereafter bundle theory) as my starting point. The implication of cognitive conjointment for this account is that self conjointment is a distinct possibility.

Bundle theory says that 'we' are comprised of a unified system of mental states: occurrent and standing beliefs, desires, sensations, etc. More specifically, bundle theory says that we are 'our own' mental states. This begets the question, what constitutes 'our own' mental states? The most common answer to this is that:

> simultaneous mental states belong to the same subject just when they are in some sense unified. The reason why the mental states of an ordinary human animal are all the thoughts of a single person is that they are unified in the right way. But if they were sufficiently disunified, they might be the thoughts of two different people.[13]

Mental states are unified in the right way if they are disposed to interact with each other. For instance, desires have the characteristic of being disposed to interact with beliefs to create action. Inga's desire to go to MoMA, for example, is disposed to interact with her belief that MoMA is on 53rd street, but not with Otto's belief that it is. The bundle view suggests that these mental systems are what constitutes a self. What follows from this is that the number of selves is necessarily equal to the number of unified mental systems. Olson terms this the *psychological individuation* principle.[14]

Now in Otto and Matilda's case, their notebook constitutes a part of both of their mental systems. This is because it stores standing beliefs, and these interact with *both* of their desires to produce action like walking to MoMA. To put it another way, standing beliefs in these notebooks such as 'MoMA is on 53rd street' are disposed to interact with *both* Otto *and* Matilda's desires. From this, it follows that their mental systems have become slightly conjoined. Now, this is not to say that their own mental systems are no longer unified—they are. What it means is that Otto and Matilda's mental systems are now (to a degree) unified, and by extension, not entirely disunified. So, the psychological individuation principle seems to suggest that Otto and Matilda are both separate selves, and not. Otto and Matilda are, to a

[11] I am using this term in a rather broad, and only descriptive, way to refer to that somewhat unified philosophical research program which makes reference to thinkers such as Kant, Quine, Frege, Russell, Rawls, and others.

[12] Eric Olson, 'There is no problem of the self', *The Journal of Consciousness Studies* 5, no. 5–6 (1998): 645–57, reprinted in *Arguing About the Mind*, ed. Brie Gertler and Lawrence Shapiro (London: Routledge, 2007), 263.

[13] Eric Olson, *What are we? A study in personal ontology* (Oxford: Oxford University Press, 2007), 136.

[14] Olson, *What are we?*, 46.

degree, the same self.[15] I will call this arrangement 'self conjointment' because they still retain some sense of personal identity.

4 Individualism and self conjointment

The strict individualism presupposed by bundle theory does not allow for the possibility of self conjointment. Bundle theory, like most philosophical theories of self, presupposes a certain individualism. Descartes, in his *Meditations*, proposed that the self, the ultimate referent of the term 'I', is the foundational cornerstone of philosophical investigation. For him, philosophy ought to begin with an understanding of the self and then progress to an understanding of the world around it.[16] Broadly speaking, the analytic philosophical tradition has accepted this metaphysical thesis. While most have moved past Descartes' characterisation of the self as *res cogitans*, most accept there is some unified, distinct, individual entity—a self—to which our analyses must make ultimate reference to. As Strawson argues, the self is ordinarily conceived as 'a single entity'.[17] Correspondingly, contemporary articulations of bundle theory presuppose that the bundle of mental states (or unified mental system as I have characterised it) is only identical with one self.[18]

The possibility of self conjointment is incongruent with this individualism, as elements of Otto and Matilda's bundle of mental states are identical with two selves. What is the implication of this incongruence? As I see it, there are three possibilities. First, that we ought to adopt a non-individualist bundle theory of self. Second, that we ought to reject bundle theory altogether and adopt another theory of self under which self conjointment does not result from cognitive conjointment. Or third, that we ought to reject the EMT, thereby demonstrating that cognitive conjointment is not, in fact, a possibility. I will investigate the latter two possibilities at a later point (to foreshadow, I do not think they are apt), so I shall assume for the time being that we should neither reject bundle theory nor the EMT and instead formulate a non-individualist bundle theory. As far as I can tell, there is no such conception in the philosophical literature. Therefore, I have turned to the cognate discipline of anthropology to supply the theoretical means to inform such a conception. What I have in mind is a dividual conception of self. The rest of this section shall formulate it and demonstrate its compatibility with bundle theory.

Anthropologists often make a distinction between understanding selves as individual or dividual.[19] In the simplest terms, individuals are indivisible selves while dividuals are divisible selves. Individuals are self-contained (e.g. unified mental systems in the bundle conception) while dividuals are comprised of a variety of related but ultimately separable features. A dividual's self is defined in a relational way: they are 'frequently constructed as the plural and composite site of the relationships that produce them'.[20] In contrast, an individual's self is defined in a more voluntary way as they are a more autonomous actor.[21] Anthropologists have traditionally made this distinction to conceptualise

[15] At this point, I would like to note that this sort of arrangement can occur even without the EMT. For instance, there are cases of conjoined twins who share various pieces of brain structure. These twins therefore have (to various degrees) conjoined cognitive systems. In the psychological bundle account of the self, presumably they too would be considered conjoined selves. In the penultimate section of this paper, I will discuss cases like these and highlight how they vindicate my central thesis: that we should conceptualise selves in a more dividual way. For more on 'conjoined twinning', see Julian Savulescu and Ingmar Persson, 'Conjoined twins: Philosophical problems and ethical challenges', *The Journal of Medicine and Philosophy* 41, no. 1 (2016): 41–55.

[16] René Descartes, *Meditations on first philosophy with selections from the objections and replies*, trans. Michael Moriarty, Oxford World's Classics Series (Oxford: Oxford University Press, 2008).

[17] Galen Strawson, 'The self', *Journal of Consciousness Studies* 4, no. 5–6 (1997): 412.

[18] For example, Compiani posits a neo naturalist bundle account which holds that the experience of ourselves is identical with all physical objects which constitute the bundle of our experiences. He conceives of this identity relation in singular fashion; he writes, 'identity is not between a postulated subject and her subjective mental representations, neither between subject and the alleged phenomenal character of experience, or between subject and neural activity, but it is between experiences and the objects of these experiences, they are identical among them because of their immanent relation, their relative existence'. See Lucrezia Compiani, 'The chimeric self: A neo naturalist bundle theory of the self', *Frontiers in Psychology* 10, no. 202 (2019): 8.

[19] See Karl Smith, 'From dividual and individual selves to porous subjects', *The Australian Journal of Anthropology* 23, no. 1 (2012): 50–64.

[20] See Sabine Hess, 'Strathern's Melanesian "dividual" and the Christian "individual": A perspective from Vanua Lava, Vanuatu', *Oceania* 76, no. 3 (2006): 285.

[21] Smith, 'From dividual and individual selves', 53.

differences in selfhood between traditional, more socially rigid societies and more modern ones. For those purposes, for a variety of reasons that I will not get into here, it is a problematic distinction.[22] However, to capture how cognitive extension might diffuse the self, it is useful to bring this distinction in, albeit without its social connotations. The dividual conceptualisation of the self that I have in mind is concerned with the same proposition as the original problem of the self—x is y's self if and only if … —but it does not view that identity relation in a monistic way. In the dividual conception, it is perfectly legitimate to fill the proposition x is y's *and* z's self if and only if … (whereby the ellipsis denotes some logically equivalent phrase).

A dividual understanding of the self is not incompatible with bundle theory. Hume, the theory's original exponent, expressed dissatisfaction with bundle theory. In *Treatise*, he notes that he is unable to give an explanation of what binds together our bundle of mental states:

> when I proceed to explain the principle of connexion, which binds them together, and makes us attribute to them a real simplicity and identity; I am sensible, that my account is very defective … we only *feel* a connexion of thought … all my hopes vanish, when I come to explain the principles, that unite our successive perceptions in our thought or consciousness. I cannot discover any theory, which gives me satisfaction on this head.[23]

In a sense, Hume is expressing a degree of permissivism about mental experience being disunified. He suspects that our ascription of an individual self to this experience is only a matter of convention. There seems to be no principled reason for *not* ascribing the same mental states to different selves; just as there is no reason that the term 'self' cannot attach to non-human physical entities, there is no reason that a non-human entity cannot attach to a dividual self. The dividual conception of the self, which ascribes the same mental states to different selves, is therefore not, in principle, incompatible with bundle theory. It is therefore a plausible solution to the incongruence of cognitive conjointment and bundle theory. I think it is also a desirable solution as it has the added benefit of accounting for cases of 'split brain' patients.

5 Dividuals and split brain patients

Recent neurological research suggests that we might not be able to know how many selves are present in the normal human body.[24] Dissociative identity disorder (DID) is a condition in which a single body appears to be animated by two or more selves.[25] The core phenomenon at play in DID is a lack of connection among conscious states associated with a single body.[26] There is a surgical procedure known as *cerebral commissurotomy* where the corpus callosum (a thick bundle of nerves that connect the two hemispheres of the brain) is cut. In cases where patients have undergone a cerebral commissurotomy, there are mental states which do not interact with each other in a similar way to individuals with DID.[27] For example, a patient looks at the centre of a wide screen whose left half is red, and the right half is blue.[28] On each half are the words 'how many colours can you see?' In this test, the patients would write with both hands, 'Only one'. When the words were changed to read 'Which is the only colour you can see?' with the left hand, patients would write 'Blue', and the right hand, 'Red'. This has to do with the disconnect between the two hemispheres, which are operating independently of each other due to

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[22] See Harri Englund and James Leach, 'Ethnography and the meta-narratives of modernity', *Current Anthropology* 41, no. 2 (2000): 225–48.

[23] David Hume, *A treatise of human nature*, ed. Lewis Selby-Bigge, 2nd ed. (Oxford: Clarendon Press, 1978), 634, emphasis added.

[24] Thomas Nagel, 'Brain bisection and the unity of consciousness', *Synthese* 22, no. 3/4 (1971): 396–413, reprinted in *Arguing about the mind*, ed. Brie Gertler and Lawrence Shapiro (London: Routledge, 2007), 214–28; Derek Parfit, 'Divided minds and the nature of persons', in *Mindwaves*, ed. Colin Blakemore and Susan Greenfield (Blackwell: Oxford, 1987), reprinted in *Arguing about the mind*, ed. Brie Gertler and Lawrence Shapiro (London: Routledge, 2007), 229–36.

[25] MM McAllister, 'Dissociative identity disorder: A literature review', *Journal of Psychiatric and Mental Health Nursing* 7, no. 1 (2000): 25–33.

[26] McAllister, 'Dissociative identity disorder', 26–27.

[27] Nagel, 'Brain bisection and the unity of consciousness', 215.

[28] This example is taken from Parfit, 'Divided minds and the nature of persons', 229.

the commissurotomy. Per the principle of psychological individuation, in these cases, there would be two selves inhabiting the one body.

However, when the patients leave the experimental situation, their behavioural disassociation disappears and they function normally.[29] This suggests that mental unity, which is central to the bundle understanding of the self, is not absolute. Rather, our mental systems are only integrated to a greater or lesser degree. And this is even in the case with patients who have a functioning corpus callosum. As Nagel puts it:

> The ultimate account of the unity of what we call a single mind consists of an enumeration of the types of functional integration that typify it. We know that these can be eroded in different ways, and to different degrees. [Therefore] the belief that even in their complex version they can be explained by the presence of a numerically single subject is an illusion.[30]

This leads Nagel to conclude that 'it is possible that the ordinary, simple idea of a single person will come to seem quaint some day, when the complexities of the human control system become clearer'.[31] The EMT suggests that the human control system extends even out of its environment and that the self can be conjoined (at least in the bundle conception). Both of these cases would be accounted for within a dividual conceptualisation of the self.

If the correct implication of cognitive conjointment is that a dividual conceptualisation of the self is required, then cases of cognitive conjointment may require rethinking in many areas of philosophy. For example, most analytic moral thought is underpinned by a relatively strict metaphysical individualism that holds that the ultimate moral subject is the individual; all moral judgements ultimately have to make reference to the individual. In a world of dividuals, it is unclear whether such moral thought is appropriate. These questions are ultimately outside of the remit of this paper but are nonetheless worth considering; a dividual conceptualisation of the self might pose more problems than it solves. Therefore, before we accept this implication, let us consider the alternate implications of cognitive conjointment, that: (a) we ought to reject the EMT, and by extension the possibility of cognitive conjointment; or (b), we ought to adopt another theory of self under which cognitive conjointment does not result in self conjointment. The next two sections shall demonstrate that neither seem apt.

6 A defence of the EMT

I do not think the apt implication of Otto and Matilda's case is that we ought to reject the EMT because, simply put, the EMT is a strong thesis. To demonstrate as such, this section will evaluate the soundness of this thesis using a reconstruction of Clark and Chalmers's original argument for the EMT in propositional logic by Brie Gertler:

1. 'What makes some information count as a [standing] belief is the role it plays' (p. 14).
2. 'The information in the notebook functions just like [that is, it plays the same role as] the information constituting an ordinary non-occurrent belief' (p. 13).
3. The information in Otto's notebook counts as standing beliefs (from (1) and (2)).
4. Otto's standing beliefs are part of his mind.
5. The information in Otto's notebook is part of Otto's mind (from (3) and (4)).
6. Otto's notebook belongs to the world external to Otto's skin—that is, the 'external world'.
7. The mind extends into the world (from (5) and (6)).[32]

In this logically valid reconstruction, (1), (2), and (4) are the potentially objectionable premises as (3) and (5) follow from others and (6) is a given. Therefore, to evaluate the strength of the EMT, I shall, in turn, analyse (1), (2), and (4) below.

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[29] Nagel, 'Brain bisection and the unity of consciousness', 222.

[30] Nagel, 'Brain bisection and the unity of consciousness', 225.

[31] Nagel, 'Brain bisection and the unity of consciousness', 226.

[32] Brie Gertler, 'Overextending the mind?', in *Arguing About the Mind*, ed. Brie Gertler and Lawrence Shapiro (New York: Routledge, 2007), 193.

(1) is a functionalist premise; it defines a mental state (i.e. standing beliefs) in terms of its functional role. Rejecting this premise is tantamount to rejecting functionalism. Therefore, the flaw in the EMT could be its functionalist underpinnings. The debate between Clark and Adams and Aizawa on the EMT is largely a debate on this point.[33]

Adams and Aizawa argue that the functional coupling of a physical object with an agent's cognitive process does not mean that that object partially constitutes that agent's cognitive process. Rather than its functional role, they claim that we should look to the nature of that object to determine whether it qualifies as a constitutive part of a cognitive process. They propose that: 'a first essential condition on the cognitive is that cognitive states must involve intrinsic, non-derived content'.[34] Therefore, for a process to be cognitive, it must necessarily involve non-derived content. They claim that Otto's notebook does not involve non-derived content and is therefore not a part of his cognitive process.

Clark counterargues that Adams and Aizawa are missing the point. The point of coupling, he writes, is not to make the object cognitive per se, but rather:

> it is intended to make some object, which in and of itself is not usefully (perhaps not even intelligibly) thought of as *either cognitive or noncognitive*, into a *proper part of some cognitive system*, such as a human agent.[35]

In other words, Clark is arguing that functionally speaking, it is still the case that the notebook constitutes a part of Otto's cognitive system, irrespective of whether the notebook itself is cognitive. Therefore, this debate, in large part, reflects Clark's commitment to a functionalist theory of mind and Adam and Aizawa's rejection thereof.

I do not wish to make any substantive contributions to this debate expect to say that, on the weight of the literature, rejecting functionalism does not seem like a tenable move. Among other things, rejecting functionalism leads us back to the infamous problem of multiple realisability. Put simply, the problem is that it seems very plausible that the same mental state can be realised by different physical kinds—for example, there seems no principled reason that a robot and a human could not both experience the mental state of pain[36]—so we have to have a conception of mental happenings that accounts for multiple realisation. Functionalism does this quite well.[37] Given that, unless we can account for multiple realisation with some other theory of mind, it seems we ought to accept functionalism.

Consider next (2). Clark and Chalmers's four criteria govern what constitutes a nonbiological standing belief. Under these criteria, the notebook constitutes a nonbiological standing belief. Perhaps these criteria are insufficient, and so (2) is false. Weiskopf argues that the notebook lacks a key feature that is part of the normal functional role of standing beliefs: informational integration. He points out that internal standing beliefs are *automatically revised* in light of new information.[38] While Otto and Matilda might revise the entries in their notebook in this way, this revision is not automatic—that is, it requires deliberation. Therefore, their notebook does not constitute the same functional role as an internal standing belief. However, that is not to say that it *cannot be the case* that a nonbiological entity could fill the same role.

Imagine Ada, an individual in the (cyberpunk) future who decides to have a neural chip implanted in her brain. Suppose that almost everyone has this chip. This chip gives them access to a massive databank of standing beliefs, ranging from locations of certain things to complex mathematical formulas. This

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[33] See Fred Adams and Ken Aizawa, 'Defending the bounds of cognition', in *The extended mind*, ed. Richard Menary (Cambridge, Massachusetts: MIT Press, 2010), 67–80.

[34] Fred Adams and Ken Aizawa, 'The bounds of cognition', *Philosophical Psychology* 14, (2001): 48.

[35] Andy Clark, 'Coupling, constitution, and the cognitive kind: A reply to Adams and Aizawa', in *The extended mind*, ed. Richard Menary (Cambridge, Massachusetts: the MIT Press, 2010), 83.

[36] Some reject this, arguing that there is a strict identity between mental states and physical states such that no one mental state can be realised by a different physical state. See Tom Polger, 'Are sensations still brain processes?', *Philosophical Psychology* 24, no. 1 (2011): 1–21

[37] It is worth noting that in later works, Putnam did use multiple realisability arguments *against* functionalism. This in direct contrast to earlier works where she used multiple realisability to argue *for* functionalism. See Hilary Putnam, *Representation and reality* (Cambridge, Massachusetts: MIT Press, 1988).

[38] Dan Weiskopf, 'Patrolling the mind's boundaries', *Erkenntnis (1975-)* 68, no. 2 (2008): 267–69.

bank is not like the internet; it is a private databank that is updated in light of new information and automatically ensures internal consistency between beliefs. In other words, it is informationally integrated. This bank serves to complement their memory which now no longer has to store banal beliefs. Suppose that this neural chip satisfies Clark and Chalmers's four criteria: Ada has instant access to the bank; she considers it as trustworthy as her memory because she knows it is constantly updated and internally consistent; it is easily accessible because it is implanted in her brain; and she consciously endorsed it when she decided to implant it. Ada, it would seem, has an extended mind. Therefore, what Weiskopf's critique shows is not that nonbiological entities cannot have the same functional role as standing beliefs, but that no nonbiological entities *existing today* can. Presumably, as our technological capacity to offload cognitive processes onto external objects increases, there will be more candidates for mind extension. This suggests that, temporally speaking, cognitive conjointment will become an increasingly distinct possibility.

Consider now (4). To reject it, Gertler suggests that

> the internal equivalents of notebook entries and external computing processes—namely, internal standing beliefs and nonconscious cognitive processes—are not, strictly speaking, part of the mind. On this view, the mind is made up entirely of occurrent states and conscious processes.[39]

If Otto and Matilda's standing beliefs do not constitute a part of their mental system, then they are not cognitively conjoint. This would also be true of Ada and her cyberpunk compatriots.

But this seems like a deeply implausible claim: what are standing beliefs, if not part of the mind? Contending that they are not would require an untenable distinction to be drawn between the mind (in Gertler's view, a succession of occurrent states) and whatever the standing beliefs constitute. An analogy will help here. There are five elements to a computer: a primary memory, central processing unit (CPU), a control unit, and input and output units.[40] A computer functions in a similar way to the mind (let us assume), hence it can also be considered as having those five components. Contending that standing beliefs are not a part of the mind would be like saying that a computer is only the CPU, the control unit, and its input/output units. Redefining the notion of a computer to only include those components means the concept of a computer itself has limited use, for such a machine would not work (i.e. compute). Likewise, saying that the mind only consists of occurrent states makes the concept itself almost useless. If desires cannot be combined with standing beliefs, then action cannot happen.

Unless we want to reject functionalism, it would seem that the EMT is sound. Therefore, I do not think we ought to reject this thesis just because it implies that cognitive conjointment may occur; cognitive conjointment may (as Ada's case suggests) become commonplace in the future. The next section shall consider the third possible implication: that we ought to adopt another theory of self.

7 Alternative theories of self

This section will consider whether cognitive conjointment will lead to self conjointment in two other prominent theories of self: Dennett's narrative theory, and Zahavi's minimal self. If it does not, perhaps the apt response to Otto and Matilda's case would be to reject bundle theory and opt for whichever theory does not. However, in both theories of self, I suspect cognitive conjointment will lead to self conjointment.

Consider first Dennett's narrative theory of self, which conceives of the self as a 'centre of narrative gravity'.[41] A centre of gravity is an *abstractum*: a theoretical property which helps characterise the behaviour of certain objects. Dennett proposes that the self is a similar, albeit much more complicated, theoretical fiction.[42] As the notion of a 'centre of gravity' was developed to explain the behaviour of

[39] Gertler, 'Overextending the mind', 202.

[40] I am roughly understanding a computer here as a Von Neumann machine.

[41] Daniel Dennett, 'The self as a centre of narrative gravity', reprinted in *Arguing about the mind*, ed. Brie Gertler and Lawrence Shapiro (London: Routledge, 2007), 237–47.

[42] Dennett, 'The self as a centre of narrative gravity', 238.

certain objects, so too was the notion of the self developed to explain and interpret complicated biological things (let us term them here people). Critically, this is a process of interpersonal and intrapersonal creation, for we have to posit selves to ourselves as well.[43] Essentially, in this narrative account, the self is a story that people tell themselves.

At least initially, this narrative account seems to avoid the problematic implications of cognitive conjointment for strictly individual understandings of the self. If Otto and Matilda are posited *abstractum*, then different stories can be posited for them even if they share some cognitive processes. However, there has to be some material entity that posits the self. In the case of Otto and Matilda, to a degree, they materially constitute each other. Therefore, it is not clear that we can posit different selves for cases of conjointment, for two stories about one conjoined person is explanatorily superfluous. Presumably, this issue becomes more prevalent the more that cognitive processes are offloaded onto objects that are shared by people.

Consider next a minimal account of the self, like the kind advocated by phenomenologists such as Zahavi. Phenomenologists argue that to understand the notion of a self, we have to analyse the structure of conscious experience. There is, phenomenologists claim, a first-person *givenness* in conscious experience. While the content of this experience varies dramatically, one commonality amongst them 'is the quality of mineness'.[44] This, Zahavi argues, 'consequently entails a primitive form of intrinsic self-reference'.[45] This form is what they term the minimal self. That minimal self reflects on and interprets the content of that experience to form a certain identity (let this be termed the reflective self). The reflective self, Zahavi argues, is the self that Dennett's theory refers to, and possibly the self that bundle theory refers to.

Again, at first glance, it seems that such a conception avoids the problematic implications of cognitive conjointment for strictly individual understandings of the self. While Otto's reflective self seems undoubtedly conjoined with Matilda's reflective self, for they both interpret and reflect on a similar standing belief system (i.e. memory), their more minimal selves seemingly remain individualised. However, given that the subject of conscious experience is, if we accept the physicalist thesis, some physical object (or collection thereof), and the EMT shows that physical objects can constitute more than one cognitive system, it is possible that even the minimal self could become conjoined. Ultimately, time will tell whether cognitive processes can be offloaded to such a degree that the minimal self may become conjoined.

8 Conclusion

The EMT, a thesis which I have argued is sound (unless we want to reject functionalism, which does not seem tenable), entails a possibility of cognitive conjointment. In this paper, I have analysed the implications of this possibility for our conceptions of self. Taking as a starting point the bundle conception, I have argued that cognitive conjointment implies a degree of self conjointment. Self conjointment is incompatible with the individualism presupposed by bundle theory. To account for the possibility of self conjointment within bundle theory, I formulated a dividual conception of self which is compatible with bundle theory and has the added benefit of accounting for cases of 'split brain' patients. To conclude, I contended that we either ought to consider a dividual conception of self or reject bundle theory. As cognitive conjointment seemingly leads to self conjointment in other theories of self, I propose that we ought to consider a departure from the long-held tradition of individualism in our conceptions of self.

[43] Dennett, 'The self as a centre of narrative gravity', 238.

[44] Dan Zahavi, 'Self and other: The limits of narrative understanding', in *Narrative and Understanding Persons*, ed. Daniel Hutto, Royal Institute of Philosophy Supplement 60 (Cambridge: Cambridge University Press, 2007), 189.

[45] Zahavi, 'Self and other: The limits of narrative understanding', 191.

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