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On representation-hungry cognition (and why we should stop feeding it)

Abstract

Despite the gaining popularity of non-representationalist approaches to cognition, it is still a widespread assumption in contemporary cognitive science that the explanatory reach of representation-eschewing approaches is substantially limited. Nowadays, many working in the field accept that we do not need to invoke internal representations for the explanation of online forms of cognition. However, when it comes to explaining higher, offline forms of cognition, it is widely believed that we must fall back on internal-representation-invoking theories. In this paper, I want to argue that, contrary to popular belief, we don't yet have any compelling reason for assuming that non-representationalist theories are, as a matter of necessity, limited in scope. I will show that Clark and Toribio's influential argument in terms of 'representation-hungry' cognition can, for various reasons, hardly be considered an argument at all. On closer inspection, we'll see that the claim from representation-hunger is, on the one hand, built on the fallacious principle that 'representational phenomena require representational explanations', and on the other hand, on a conflation of the level of description with the level of explanation. As we'll also see, this conflation is remarkably common and also undergirds the misguided idea that Husserlian phenomenology can be recuperated within the framework of mainstream representationalist cognitive science.

Introduction

In their recent book *Sensorimotor Life*, enactivists Ezequiel Di Paolo, Xabier Barandiaran and Thomas Buhrmann state:

One cannot claim that there is no alternative to explain cognition when representationalism itself is not an alternative in the first place. (Di Paolo et al. 2017: 29)

The idea of invoking internal representations for explanations of cognition has for many now become part of a 'no-go zone'. It is felt by a growing number of theorists that the notion of internal representation, traditional cognitive science's central explanatory posit, is simply untenable. Indeed, the days when representationalist cognitivism could lay claim on being the only game in town seem by now well behind us. What is more, according to Di Paolo et al., playing the mental representation game should never have been considered an acceptable strategy to begin with. Yet, it would be a

mistake to think that these radical antirepresentationalist authors are speaking for the contemporary majority of those working in the field of cognitive science. Here, skepticism with regards to representation-eschewing approaches to mind and cognition still reigns. Although most would now grant that, to explain how baseball players manage to catch a fly-ball, invoking representations might be unnecessary. But when it comes to the cognitive ‘heavy lifting’, internal representations are by most theorists still regarded as an indispensable explanatory posit. More generally speaking, it is assumed that when it comes to forms of online cognition, perhaps we can do without representations. Accounting for offline cognition without invoking representations, however, is by many felt to be not only implausible, but simply inconceivable. This skepticism with regards to the scope of representation-eschewing approaches is nicely captured in the title of Shimon Edelman’s (2003) paper *But will it scale up? Not without representations*. Furthermore, to the extent that *real* cognition is equated with offline cognition, it follows that *real* cognition must still be explained in terms of internal representations. Looked at it this way, then, the rise of E-Cognition hasn’t changed much for the classic cognitivist. After all, when it comes to *real* cognition, the cognitivist can still lay claim on being the only game in town. Of course, things would be different if the radical enactivist could convince the representationalist that his reach is not restricted to online cognition, but that it can also accommodate genuine (i.e. offline) cognition such as memory, imagination and thought. But, as things stand, this has not yet happened, so fans of representation have hardly reasons to worry. At least, this seems to be the majority’s position within the representationalism vs. nonrepresentationalism debates. Here, I critically want to investigate this position. As I will hope to show, despite its wide acceptance, the assumption that offline cognition is ‘representation-hungry’ is unwarranted for a number of reasons. Ultimately, the idea that offline cognition needs to be explained by invoking representations is based, not on an argument, but on a fallacious presupposition. But since much hinges on the distinction between online and offline cognition, I’ll start by saying something about this distinction.

Online/offline cognition

Historically speaking, the distinction between online and offline cognition appears to have been introduced in cognitive science theory in the first half of the nineties, especially through the work of Andy Clark and his colleagues. In a private correspondence, Clark mentions that he himself is unsure how and when exactly it became custom to apply the online/offline distinction to cognition, but he claims that it was “common enough back in the early 90’s when Chalmers, Grush and I were all working in the PNP program at Washington University.” This would have been around 1993. Of

course, the online/offline distinction itself derives from developments in computer technology and telecommunications, where it refers to a state of either being connected or disconnected to a network, and to the internet in particular. Nowadays, the distinction is familiar enough, which is obviously a consequence of the ever-increasing internet usage. And it is also in this by now familiar sense of connectivity versus non-connectivity that Clark and his colleagues started using the online/offline distinction in relation to cognition. In other words, the idea of understanding cognition in computer science terms (which had of course already been in vogue since the fifties), acquired an 'upgrade' in the nineties thanks to new developments in the same field of computer technology. From then on, cognition couldn't only be grasped in terms of hardware implementing software; now, the mind could also go 'online' or 'offline', depending on the kind of task it is supposed to be performing.

Clark first mentions the distinction between online and offline cognition on paper in his 1996 book *Being There*. It should be noted, however, that in this work, the distinction itself nowhere becomes a topic in its own right. Rather, what we find are more or less *ad hoc* applications of the terms 'online' and 'offline' to distinguish different forms of cognition. The use of the term 'online' in relation to cognition is rather ubiquitous in this work, where it is supposed to pick out those forms of cognition that are "intimately dependent on properties of the local environment." (Clark 1996: 63) Examples include visual search, object-identification, tool-use and other intelligent behavior that is said to be 'coupled' to the environment. The term 'offline', on the other hand, appears only once in the book. In discussing the difference between creatures incapable of internally representing the world versus those that *do* have this capacity, Clark writes:

Such creatures are the most obvious representers of their world, and are the ones able to engage in complex imaginings, *off-line* reflection, and counterfactual reasoning. Problems that require such capacities for their solution are *representation-hungry*, in that they seem to cry out for the use of inner systemic features as stand-ins for external states of affairs. (Clark 1996: 147; my italics)

For my present purpose, this passage is particularly revealing as here, we see a connection being made between offline cognition and so-called representation-hungry problems. The distinction between online and offline cognition, as well as the idea of representation-hungry cognition for many marks a principled limitation on non-representationalist approaches to cognition. As Clark claims some years later:

The major challenge for the vision of "radical embodiment" ... lies with the class of "representation-hungry" problems and the phenomena of offline, abstract, and environmentally decoupled reason. (Clark, 1999, p. 350)

Probably the earliest, and at the same time most influential expression of this skeptical attitude can be found in Clark and Toribio's *Doing without representing?* (1994). In this paper, the authors critically assess some of the pioneering work of non-representationalist cognitive scientists like Rodney Brooks, Tim van Gelder and Randall Beer. Clark and Toribio develop two different claims against non-representationalist approaches. First, Clark and Toribio contend that the non-representationalist accounts by Brooks, Beer and others are perhaps not as 'representation-free' as these theorists like to think. Second, it is argued that the non-representationalist approaches suggested by Brooks, Beer and van Gelder have insufficient means to deal with, what Clark and Toribio call, 'representation-hungry' problems. Here, I will only be concerned with the latter (and stronger) of these two claims, which is centered around the influential notion of 'representation-hungry' cognition.

Doing without representing? Representation hunger and offline cognition

After having discussed the allegedly non-representational accounts of Brooks and Beer, Clark and Toribio conclude that, despite their potential merits,

none of this, on the face of it, amounts to much in the way of evidence for what we shall now dub the General Radical Claim, viz. the claim that internal representation is not essential to genuine cognition. (Clark and Toribio 1994: 412)

The authors go on to discuss another landmark attempt at providing a non-representational explanation of cognitive behavior, the by now well-known dynamical system's analysis of the Watt Governor by Tim van Gelder (van Gelder 1995)¹. But despite van Gelder's non-representationalist aspirations, in the final analysis, Clark and Toribio conclude that also here,

[t]he basic trouble is one that afflicts all the case studies mentioned above. It is that the kinds of problem-domain invoked are just not sufficiently 'representation hungry'. (Clark and Toribio 1994: 418)

Clark and Toribio define the idea of a 'representation-hungry' problem domain as follows:

By a 'representation-hungry' problem domain we mean any domain in which one or both of the following conditions apply:

1. The problem involves reasoning about absent, non-existent, or counterfactual states of affairs.

¹ At the time of Clark and Toribio's 1994 paper, van Gelder's much discussed 1995 'What might cognition be if not computation?' was still in press.

2.The problem requires the agent to be selectively sensitive to parameters whose ambient physical manifestations are complex and unruly (for example, open-endedly disjunctive). (Clark and Toribio 1994: 419)

The subdivision of the representation-hungry problem domain is sometimes grasped in terms of cognition relating to ‘the absent’ on the one hand, and to ‘the abstract’ on the other (Clark 1996; see also Degenaar & Myin 2014). As indicated by Clark and Toribio, the first subdomain involves the absent in three different ways (spatiotemporal absence, non-existence and counterfactuality). In addition to reasoning, we can include other forms of cognition that involve the absent as well, in particular memory and imagination.

The second subdomain is said to involve the abstract in the sense that certain problems require sensitivity only to certain salient features of the sensory array. Otherwise put, these are problems that require the cognitive capacity to abstract the same significant features away from different sensory inputs. Clark and Toribio mention as an example the ability to respond selectively “to all and only those items which belong to the Pope” (Clark & Toribio 1994: 420)

The point Clark and Toribio want to bring across is clear enough: cognition involving the absent and the abstract is ‘representation-hungry’ in that it requires internal representations that stand in for both absent and abstract properties. Furthermore, since representation-hungry cognition is the kind of cognition that is deemed ‘genuine’, it follows that genuine cognition requires invoking internal representations as well. So whatever it is the non-representationalist thinks he has achieved, for Clark and Toribio, it is clear that it is not to be considered as an explanation of ‘genuine’ cognition.

When we view the discussion in light of the distinction between online and offline cognition, it appears that this distinction coincides with Clark and Toribio’s distinction between representation-hungry and non-representation-hungry cognition, and, consequently, with the distinction between genuine and non-genuine cognition². As we’ve seen, offline forms of cognition pick out decoupled forms of cognition that deal with the *absent* (memory, imagination...) as well as the *abstract* (reasoning, categorization...), and are therefore said to require internal representations, whereas ‘online cognition’ (perceptuo-motor interactions) picks out coupled cognitive activity that deals with what is *present* here-and-now, and with what is *concrete* instead of abstract. On Clark and Toribio’s

² The conceptual correspondence between representation-hungry cognition and off-line cognition is confirmed by Clark himself. See Clark 2005.

account, it becomes questionable, then, whether online cognition even qualifies as a form of cognition at all³.

In the following, I want to critically assess Clark and Toribio's argument based on the idea of representation-hunger. I want to emphasize that I want to do so, not simply to expose the weaknesses of their argument, but rather – and more importantly – to use Clark and Toribio's case as an example of a fallacious argumentation which is far too common in the literature. Simply put, it is the fallacy of assuming that, what can sensibly be said to be representational, must by necessity require representations in its explanation.

A fundamental fallacy

Before starting my analysis of Clark and Toribio's claim that non-representational accounts end where offline cognition begins (a.k.a. the 'scaling up objection'), I want to again stress that the idea that representation-hungry cognition imposes principled limits on non-representationalist approaches is indeed widely accepted. Notably, the idea has found its way into the Stanford Encyclopedia of Philosophy, where it isn't merely being explained, but at the same time endorsed. In their entry on embodied cognition, Robert Wilson and Lucia Foglia write:

Formulating an empirically adequate theory of intelligent behavior without appealing to representations at all ... faces *insuperable* difficulties...For example, organism-environment interaction alone cannot account for anticipatory behavior, which involves internal factors beyond the immediate constraints of the environment to achieve or fulfill future needs, goals or conditions. Domains raising a representation-hungry problem (...) are those involving reasoning about absent, non-existent or counterfactual states of affairs, planning, imaging and interacting (Wilson and Foglia 2011: section 4.2, my emphasis)

Consequently, trying to argue against the claim that representation-hungry cognition falls outside the scope of non-representationalist cognitive science is doing something more than arguing against Clark and Toribio alone. It means going against a view which has arguably become the standard view when it comes to the scope of the non-representationalist outlook.

³ Clark and Toribio 1994 certainly lean towards this idea. However, the dismissal of on-line activity as a form of cognition is much more straightforward with cognitivists like Fred Adams, Kenneth Aizawa and many others defending the idea that the involvement of representations is a *conditio sine qua non* for cognition. For these authors, the involvement of internal representations constitutes "the mark of the cognitive" (for recent accounts, see Adams and Aizawa 2008, Adams 2010, Adams and Garrison 2013). To the extent, then, that on-line cognition can be understood without invoking representations, it follows that this form of cognition shouldn't even qualify as properly cognitive to begin with.

To be sure, arguing against the idea that representation-hungry cognition poses principled limits on non-representational approaches can be done in more than one way. As Chemero notes, one “possibility is to use empirical work to show that radical embodied cognitive science has the resources to explain representation-hungry tasks.” (Chemero 2009: 40)⁴ However, “showing by example that there is no in-principle reason that radical embodied cognitive science is not capable of explaining “real cognition”” (Chemero 2009: 42-43) is not the kind of strategy I want to pursue here. The reason is that this would already grant the argument from representation hunger (henceforth ARH) too much. The ARH does not *need* to be countered with empirical evidence, because, on closer examination, the ARH is fundamentally confused. As already indicated, in the final analysis, the ARH turns out to be entirely rooted in a flawed assumption, namely the assumption that an explanandum which can be properly described as representational (e.g. memory, imagination, reasoning...) necessarily requires representation in its explanation.

Representational explanandum and representational explanation

The notion of representation-hunger is fundamentally ambiguous with regard to the distinction between explanandum and explanans. Throughout Clark and Toribio’s paper, the qualification ‘representation-hungry’ appears to be serving the double purpose of descriptively picking out a certain kind of cognition – which the authors equate with ‘genuine’ cognition – as well as characterizing the kind of explanations this ‘genuine’ cognition requires. This failure to properly disambiguate between the explanandum and the explanans is remarkably common in philosophy of cognitive science. In the literature, one encounters the same ambiguity in standard formulations like ‘representation-involving’, or ‘*representational* cognition’. Recall Wilson and Foglia’s definition of representation-hungry problems as “those involving reasoning about absent, non-existent or counterfactual states of affairs, planning, imaging and interacting”. The problem is that formulations in terms of ‘the involvement’ of representations leave unspecified whether representations are involved merely in the characterization of some cognitive explanandum, or whether they are posited as explanatory entities. What we often find – to the reader’s frustration – is that these formulations are apparently supposed to pertain to *both* explanandum *and* explanans, and that the distinction between both is simply ignored. Clark and Toribio’s notion of representation-hunger proves no exception to this. Does ‘representation-hungry’ apply to the explanandum or the explanans?

⁴ Chemero refers to work by Van Rooij, Bongers, and Haselager. See Van Rooij, Bongers and Haselager 2002.

As said, the answer is that, on Clark and Toribio's account, it applies to both. On the one hand, it is rather obvious that the idea of representation-hunger must pertain to *explanations* of cognition. How else is the idea supposed to be relevant for discussions about the *explanatory* scope of non-representationalist approaches? So clearly, ARH wants to be an argument at the explanatory level. Therefore, it is the *explanation* of offline cognition that must be deemed representation-hungry in the sense of requiring the positing of internal representations. On the other hand, it is equally obvious that representation-hunger applies, not only to the explanations, but at the same time also to the kinds of cognition under consideration. It is no coincidence that 'representation-hungry cognition' covers precisely those forms of cognition that are commonly characterized as representational in nature. Within the phenomenological literature, for instance, memory, imagination and other forms of offline cognition are canonically described as representational because of their intentional relation to what is not-present. Indeed, 'offline cognition' seems to capture exactly the kind of mental activity that both classic, as well as contemporary phenomenologists⁵ characterize in terms of mental representation. Unlike perception, cognitive activities like remembering or imagining are best *described* as representational, in that they somehow re-present that which is in some sense absent, or at least not present in perception. But by no means does this entail that such representational abilities must be explained by invoking internal content-carrying entities. Husserl's rejection of representationalism, understood as the idea that our representational abilities (offline cognition) should be explained by internal object-like representations, becomes very clear in his 1915 lecture course *Ausgewählte phänomenologische Probleme*. Paraphrasing Husserl, Dan Zahavi writes:

[N]othing might seem more natural than to say that the objects I am aware of are outside my consciousness. When my experiences – be they perceptions or other kinds of intentional acts – present me with objects, one must ask how this could happen, and the answer seems straightforward: By means of some representational mediation. The objects of which I am conscious are outside my consciousness, but inside my consciousness, I find representations (pictures and signs) of these objects, and it is these internal objects that enable me to be conscious of the external ones. However, as Husserl then continues, *such a theory is completely nonsensical*. (Zahavi 2018: 56-57, my emphasis)

According to Husserl, the theory makes no sense because the idea that consciousness is some kind of box containing representations that resemble external objects completely ignores the problem of how we are "supposed to know that the (mis)representations are in fact (mis)representations of external objects" (Zahavi 2018: 57) The following excerpt from Husserl's lecture leaves little doubt as to his anti-representationalist position:

⁵ See, for instance, Marbach 1993.

The ego is not a tiny man in a box that looks at the pictures and then occasionally leaves his box in order to compare the external objects with the internal ones etc. For such a picture observing ego, the picture would itself be something external; it would require its own matching internal picture, and so on *ad infinitum* (Husserl 2003: 106).

I'll return to this. What I want to argue first of all, however, is that the ARH poses no threat to the non-representationalist, regardless of whether we consider 'representation-hunger' at the level of description, or at the level of explanation.

'Representation-hunger' as a descriptive notion

To better see why, at the descriptive level, the idea of representation-hunger is no problem for the non-representationalist, consider a random memory-task, like remembering what you had for breakfast this morning. Authors like Clark and Toribio will agree that this is a case involving a kind of cognition to which qualifications like 'offline', 'representation-hungry' and 'genuine' surely apply. However, the only clear reason we have for calling such a task 'representation-hungry' is that it by definition involves memory, something which is *already understood as a representational capacity*. We may just as well call a cognitive task like recalling what one had for breakfast 'memory-hungry' instead of 'representation-hungry'. It is only because we have already agreed on defining the activity of remembering in terms of *re-presenting*, for instance a past episode, that the idea of representation-hunger seems appropriate. But note that this makes the idea of labelling memory-involving cognition 'representation-hungry' completely analytical. If the act of remembering is already defined as an act of representing, then of course, any problem that is best described as involving memory, or memory-hungry, is also describable as representation-hungry. But this is an entirely analytical, and empirically uninteresting idea. More importantly, however, nothing about this idea forms a threat to the non-representationalist program of providing *explanations* of cognition without positing internal representations. We are after all still on the descriptive level. One can easily acknowledge that a certain cognitive phenomenon is best described as representational in nature, without therefore having to accept the very different idea that these phenomena need to be explained in terms of the processing of internal representations. Even if we concede that the various forms of offline cognition are best described as representational capacities, it doesn't follow that we need to *explain* these capacities by invoking internal representations. By analogy, one might very well accept the idea that the heart is best described as a pump, without therefore having to concede that, somewhere in the explanation of the organ's function, we will have to invoke the notion of (internal) pumps. In fact, thinking that we *must* seems like a particularly bad idea as it immediately

raises worries of circularity or regress. So why, then, should we so easily accept the idea that cognition that is best characterized as representational *must* be explained by invoking internal representations? I'll suggest an answer to this question in the following section.

'Representation-hunger' as an explanatory notion

On the explanatory reading, Clark and Toribio's ARH claims that certain forms of cognition (i.e., 'genuine' cognition) can only be *explained* by invoking internal representations. This is the sort of claim required to provide a potential threat for the non-representationalist. The problem, however, is that we do not find a single argument for this claim, which is nevertheless the potentially interesting one (the descriptive claim being, as we've just seen, analytical). I want to suggest that the reason why someone might feel that there *is* an argument here is because Clark and Toribio appeal to, and invigorate an implicit assumption or intuition which appears to be well-entrenched within mainstream cognitive science, an intuition which can be formulated as the idea that *whatever explains our representational capacities (as exhibited in memory, imagination and thought) must be representational as well*. Ultimately, all Clark and Toribio are doing is rehearsing the unwarranted assumption that *representational cognition must be explained by representational explanations*. We should wonder, however, what makes the idea that representational cognition must be explained in terms of representations so readily acceptable, despite worries of circularity or regress. It is plausible that this hard-wired assumption is best understood as an expression of the idea that, for an explanans to qualify as explanatorily satisfying, it must be in some sense similar to the explanandum. Indeed, I want to make the – admittedly speculative – suggestion that there is something at work here which is, within anthropology, referred to as the 'law of similarity'. It has long since been observed by ethnologists that human pre-scientific thought is governed by what are called 'laws of sympathetic magic' (Rozin & Nemeroff 2002: 201)⁶. Usually, three such laws are being distinguished: the 'law of contagion', the 'law of similarity' and the 'law of opposites'. According to the second of these laws, human thought is prone to adhere to the principle that 'causes resemble their effects', or that 'like causes like'. To be clear, these aren't just heuristic principles adhered to by people living in traditional societies, far removed from modern academies, experiment rooms and laboratories. These principles are just as well exercising their influence on the well-educated contemporary Westerner.⁷ My – again, tentative – suggestion, then, is that this principle is to some extent also at

⁶ Rozin and Nemeroff refer in particular to the work of pioneering ethnologists Edwin Tylor, James Frazer and Marcel Mauss.

⁷ Rozin & Nemeroff (2002) cite as an example the practice of homeopathy: "This cause-effect likeness principle is at the foundation of the tradition of homeopathic medicine" (Rozin & Nemeroff 2002: 204). Another example

work in mainstream representationalist cognitive science, in which representational phenomena (typically, offline cognition like memory or visual imagery) are assumed to be explained, as a matter of logical necessity, by representational entities.

As already noted several times, this assumption is widespread and Clark and Toribio (1994) provides but one of its expressions. I will devote the next section to showing just how widespread the assumption that the representational must be explained by the representational really is. As we'll see, this assumption isn't only pervasive within representationalist literature, we find it in the antirepresentationalist camp as well. First, however, I want to round off my discussion of Clark and Toribio's notion of representation-hunger with a methodological consideration pertaining to their idea that only representation-hungry cognition counts as *genuine* cognition (which, of course, only further devaluates potential non-representationalist approaches).

Must cognition be representational?

As I've already pointed out, Clark and Toribio do not give an actual argument for the assertion of real cognition requiring representational explanations. But neither do they present us with an argument for the claim that cognition can only be said to be genuine if it is "sufficiently 'representation-hungry'" (Clark & Toribio 1994: 418). Recently, William Ramsey has extensively argued why postulating the involvement of inner representations as a 'mark of the cognitive' is probably not a good idea. In a recent paper of the same title, Ramsey asks himself: "Must cognition be representational?" (Ramsey 2017). The author rightly wonders: "How did we come to treat an allegedly empirical hypothesis about mental phenomena as a way of defining mental phenomena?" (Ramsey 2017: 4205) Throughout the paper, Ramsey's focus stays on the demarcating role of representations, his main claim being that

[e]ven if you think cognitive scientists must invoke representations to explain a wide array of cognitive capacities and processes, I'll argue you should nevertheless reject the use of representations to define cognitive processes and theories.... My goal here is to establish not an anti-representational thesis, but rather an anti-representation-as-definer-of-cognition thesis. (Ramsey 2017: 4198)

Ramsey substantiates this latter thesis with three arguments. Defining genuine cognition in terms of representation should be rejected because, first, "it puts undue restrictions on psychological

these authors mention is the widespread intuition that, because a certain disease is highly resistant to treatment (e.g., AIDS), the underlying agent causing the disease (e.g., HIV virus) must have the same potent and indestructible properties (which, in the case of HIV, happens to be untrue).

theorizing” (Ramsey 2017: 4201); second, “it undermines the representational theory of mind” (Ramsey 2017: 4205); third, “it encourages wildly deflationary accounts of representation” (Ramsey 2007: 4206). All three arguments contain elements that are relevant to our topic, i.e., the scope of non-representationalist cognitive science. However, discussing these arguments would take us too far and is not necessary for my present purposes. What I want to emphasize in particular is that, defending the idea that cognition is only genuine by putting forward representation-hunger “as a demarcation criterion that articulates the ‘mark of the cognitive’ (Hutto & Myin 2017: 18) is at best merely stipulative, at worst “blatantly circular” (Hutto & Myin 2017: 18). On the descriptive reading of representation-hungry cognition, the idea that genuine cognition is best described as representational is, and can only be, a mere stipulation. On the explanatory reading of representation-hunger, saying that cognition is genuine if it can only be explained by invoking internal representations is circular if it is at the same time held that it is precisely because it is genuine cognition that it requires representational explanations. But putting our type of explanations forward as a demarcation criterion for a phenomenon under investigation and at the same time as a demarcation criterion for what counts as a possible explanation seems by all scientific standards a particularly bad idea. As Ramsey himself puts it: “You can’t treat representational posits as both interesting explanatory constructs *and* as a necessary condition for a legitimate account of the phenomena you are trying to explain” (Ramsey 2014, p. 8).

Phenomenological description and cognitivist explanation

In this section, then, I want to provide further evidence for the claim that the fallacious assumption that, *whatever can be described representationally must be explained representationally*, is indeed very widespread. As we’ve seen, this assumption remains fully implicit and is concealed by an equally widespread tendency to conflate the level of description with that of explanation. In fact, this conflation already characterizes the Representational Theory of Mind (RTM) itself. As the above analysis should have made clear, mainstream cognitive science can be said to be ‘representational’ in that it is characterized by ‘representational’ commitments, both with regard to what counts as a genuine explanation of cognition, as well as to what counts as genuine cognition itself. We see this double commitment returning in the RTM. The RTM is best understood, not so much as a well-defined theory, but rather as a generic umbrella notion, simultaneously covering claims about the nature of cognition, as well as claims about its explanation. These different claims (i.e., descriptive claims pertaining to the nature of cognition and claims about the explanation of cognition) are all part of the RTM, then, in that they are all said to be ‘representational’. The problem, however, is that

the term 'representation', as well as its cognate 'representational' have become such all-purpose notions that they tend to obscure the fact that these terms mean very different things, depending on whether we are talking about the nature of cognition or about the nature of the explanation of cognition. Saying that the mind is representational in the sense that certain mental activities can be properly described as a re-presentational activity (as the Husserlian phenomenologist might want to do) is a far stretch from saying that the mind needs to be understood in terms of the subpersonal causal mechanisms in which operations are being performed over content-carrying, distinct internal representations (as the computational cognitivist might want to do). Yet, it is precisely in the context of phenomenological discussion that we find another good example of how the lumping together of 'representational' description with 'representational' explanation can cause serious confusion. This example can be found in the work of Hubert Dreyfus. For despite Dreyfus' longstanding and staunch opposition to computational-representational approaches to cognition, he seemed to have conflated things in the exact same way as Clark and Toribio when he proclaimed Husserl to be the father of contemporary representationalist cognitive science. In a much discussed section of his introduction to *Husserl, Intentionality and Cognitive Science* (Dreyfus 1982), Dreyfus writes:

Husserl has finally begun to be recognized as the precursor of current interest in intentionality - the first to have a general theory of the role of mental representations in the philosophy of language and mind. As the first thinker to put directedness of mental representations at the center of his philosophy, he is also beginning to emerge as the father of current research in cognitive psychology and artificial intelligence. (Dreyfus 1982: 2)

Dreyfus' depiction of Husserl as "the author of a proto-Fodorian theory of mental representations" (McIntyre 1986: 101) did not escape the attention of Husserl scholars, who vigorously rejected the comparison, and justifiably so. Authors like Ronald McIntyre and, especially, Beth Preston have convincingly shown why it would be a mistake to liken Husserl's phenomenological investigations (which indeed involve mental representation *in some sense*) to the representation invoking explanations that have become so ubiquitous within standard cognitive science. I will look closer into this because it allows us to see how misleading 'representation-attributions' are if one fails to properly distinguish between the descriptive and the explanatory level.

Representation in phenomenology and cognitive science

I will highlight three crucial differences between phenomenological representation and mainstream cognitive science representation. Two of these are already succinctly captured in the final sentence of McIntyre (1986):

[P]henomenology remained for Husserl a *descriptive* discipline, descriptive of intrinsically *intentional* experiences, as they are *experienced*. (McIntyre 1986: 112; final emphasis mine)

First, then, Dreyfus' portrayal of Husserl as a kind of precursor to contemporary computationalist cognitive science is unwarranted as it appears to neglect the fact that Husserl's phenomenological enterprise was first and foremost a *descriptive* one. This is not a mere contingency of Husserl's approach, but the essence of the phenomenological method itself. As McIntyre points out, Husserl simply *cannot* be concerned with the explanations of mental states "in terms of their causal relations to one another and to the world, for causality (in any naturalistic sense) is "bracketed" by phenomenological epoché." (McIntyre 1986: 104) On Husserl's account, mental representations are not to be understood as explanatory posits, which is, of course, precisely how they *are* conceived of within cognitivist explanations of cognition. Beth Preston similarly criticizes Dreyfus for conflating Husserl's descriptive analyses with the explanatory accounts we nowadays find in cognitive science. With regard to the issues of mental content and the intentional nature of the mental, she writes:

[I]nsofar as Husserl talks about noematic structures of consciousness he is advancing a purely *descriptive* theory of the intentionality of the mental, not an explanatory theory. ...Husserl takes meanings as the basic furniture of mental life and wants only to describe the underlying meaning-structure of experience....The RTM theorist, on the other hand, wants to understand how it is that mental symbols come to have the meanings they have, and therefore takes mental meaning as something for which an explanatory account needs to be provided. (Preston 1994: 220)

It appears, therefore, that Dreyfus' interpretation of Husserl has fallen prey to the same confusion we've encountered in Clark and Toribio's account of representation-hunger, namely conflating descriptions with explanations and assuming that representational mental activity requires invoking internal representations for its explanation.

As said, the second reason why Husserl's phenomenological descriptions can hardly be considered as recuperable within the framework of contemporary cognitive science is already being mentioned in McIntyre's short quote above, but we also find it in the just cited passage from Preston. Perhaps the most obvious reason why we shouldn't think of Husserlian mental representation as being on a par with the kind of internal representations posited by cognitive science is that, on Husserl's account, mental representation is inseparable from conscious experience. Mental representation refers first and foremost to certain subjectively experienced acts of consciousness, rather than to sub-personal object-like entities underlying, and supposedly explaining, our experience. Within mainstream cognitive science, the standard view is that conscious subjective experience is to be explained in terms of the underlying processing of content-carrying mental representations. Here, 'mental

representation' picks out first of all the elements (content-carrying vehicles) over which these underlying processes are defined⁸.

In addition to these two dissimilarities between phenomenological accounts of mental representation and those we find in cognitive science, there is a third significant difference which has up till now remained implicit. Next to being descriptive (instead of explanatory), and experiential (instead of sub-personal), within the phenomenological tradition, the term 'mental representation' refers first of all to a (mental) activity or an 'act of consciousness', and not to some physically implemented intracranial structure or process. 'Mental representation' is something we *do*, rather than some-thing in our head. Or, more precisely, it is something we are *able* to do, not some-thing that *enables* us to do something. Here, mental representation refers to a kind of capacity, and in particular, the capacity involved in acts like remembering, imagining and other conscious activities. This capacity is describable as the capacity to relate to the absent. As Husserl scholar Eduard Marbach informs us:

According to Husserl's clarification of the nature of these conscious mental activities...they are all modifications of the less complex mental activity of perceiving. The experience of perceiving something is a mental activity of intentionally referring to something in its *present* givenness, i.e. an activity of presenting something. The experiences of imagining, viewing pictures, and remembering, on the other hand, are so many ways of intentionally referring to something *absent*, i.e. activities of re-presenting something. (Marbach 1993: 1)

Indeed, as already indicated above, what Husserl and other phenomenologists refer to as mental representation appears to pick out exactly those forms of cognitive activity that Clark and Toribio refer to as representation-hungry and which also fall under the heading 'offline cognition'. As to the nature of the internal representations that mainstream cognitive scientists hypothesize to be underlying, as well as explaining these forms of offline cognition, these are first of all conceived of as object-like entities with a certain format. So, much unlike phenomenological accounts, here,

⁸ A good illustration of how this works can be found in the work of Stephen M. Kosslyn, without doubt one of the leading authors in the scientific study of mental imagery and imagination. Within the context of Kosslyn's extensive research – which now spans over four decades – 'mental representation' does not so much refer to the phenomena under investigation (mental imagery and imagination), but to the sub-personal processes which are said to underlie and explain these phenomena *qua* consciously experienced. The actual experience of imagery is referred to as only "the tip of the iceberg". It follows, then, that phenomenological introspection can only provide but a very limited understanding of mental imagery. As Kosslyn makes clear: "Introspection by its very nature only exposes the tip of the iceberg." (Kosslyn 1978: 225) So although the tip of the iceberg can be characterized in terms of mental representation, it is ultimately the sub-personal and non-experiential mental representations we find in the submerged portions of the "mental iceberg" (Kosslyn 1980: 21) which are of interest to anyone attempting to scientifically explain mental imagery and imagination *qua* experienced phenomena. The fact that invoking subpersonal mental representations to explain personal mental representation is almost circular, question-begging, and at least in no clear sense doing anything explanatorily relevant is rarely pointed out (though see Marbach 1993 for a critique).

representations are thought of, not in terms of mental activity, but in terms of *thing-like objects*, which are conceptually modelled on more familiar external ‘representational’ objects (words, sentences, pictures, models, maps...). As Dennett already notes in 1978:

Whatever *mental* representations are, they must be understood by analogy to *nonmental* representations, such as words, sentences, maps, graphs, pictures, charts, statues, telegrams, etc. The question is whether any of one's mental representations are more like *pictures* or *maps* than like *sentences*..." (Dennett 1978: 175).⁹

This *reified* picture of representation is not only far removed from Husserlian phenomenology, it appears to be in direct conflict with it. In a revealing passage, Dan Zahavi has recently pointed out that it wouldn't only be a mistake to associate Husserl with the kind of representationalism that is still dominating cognitive science, it would be misguided to understand Husserlian phenomenology as endorsing *any* kind of representationalism *at all*. As Zahavi emphasizes, Husserl's "turn towards transcendental idealism was partially motivated by his rejection of both representationalism and phenomenalism, and by his efforts to safeguard the objectivity of the world of experience." (Zahavi 2018: 56) Husserl's rejection of representationalism, understood as the idea that our experience of the world is always mediated by internal object-like representations, becomes very clear in his 1915 lecture course *Ausgewählte phänomenologische Probleme*. Paraphrasing Husserl, Zahavi writes:

[N]othing might seem more natural than to say that the objects I am aware of are outside my consciousness. When my experiences – be they perceptions or other kinds of intentional acts – present me with objects, one must ask how this could happen, and the answer seems straightforward: By means of some representational mediation. The objects of which I am conscious are outside my consciousness, but inside my consciousness, I find representations (pictures and signs) of these objects, and it is these internal objects that enable me to be conscious of the external ones. However, as Husserl then continues, *such a theory is completely nonsensical*. (Zahavi 2018: 56-57, my emphasis)

According to Husserl, the theory makes no sense because the idea that consciousness is some kind of box containing representations that resemble external objects completely ignores the problem of how we are "supposed to know that the (mis)representations are in fact (mis)representations of external objects" (Zahavi 2018: 57) The following excerpt from Husserl's lecture leaves little doubt as to his anti-representationalist position:

The ego is not a tiny man in a box that looks at the pictures and then occasionally leaves his box in order to compare the external objects with the internal ones etc. For such a picture observing ego, the

⁹ Ramsey 2007 makes the same point: "We can't posit representational states to do many of the things they are supposed to do in a theory unless the posit itself is sufficiently similar to the sort of things we pre-theoretically think representations are." (Ramsey 2007: 12)

picture would itself be something external; it would require its own matching internal picture, and so on *ad infinitum* (Husserl 2003: 106).

The above citation becomes especially pertinent when we view it in light of Stephen Kosslyn's work on mental imagery. Kosslyn's influential 'two-storey story'¹⁰ not only postulates internal representation at both the level of description *and* the underlying explanatory level (see fn. 7); the explanatory representational posits appear to be precisely the picture-like representations Husserl was already arguing against more than a century ago.

Conclusion

I have tried to show that the widely accepted 'scaling up objection', which finds its most influential expression in Clark & Toribio (1995), is undergirded, not so much by an actual argument, but rather by the fallacious premise that representational phenomena require representational explanations. I have tentatively suggested that this premise is related to what anthropologists have identified as the law of similarity, which states that 'like causes like'. This perhaps intuitive, yet misguided idea, together with the equally widespread tendency to conflate the level of description with that of explanation, explains why the idea that non-representational approaches are inadequate for dealing with representationally *describable* phenomena is so readily acceptable. Somewhat ironically, it is precisely this conflation which has led an anti-representationalist author like Hubert Dreyfus to erroneously put Husserlian phenomenology on a par with representationalist cognitive science. However, once we carefully distinguish between representation on a descriptive level (as it is typically used in phenomenological analyses for instance) and representation on an explanatory level (as it is typically used in cognitivist explanations), and once we come to see the fallacious nature of the 'like causes like' principle, there seems to be no longer any reason to think that the reach of non-representationalism is limited to non-representational phenomena. In fact, the representation-eschewing approach has at least this much in its favor, in that it avoids worries of circularity or regress. In any case, defining a phenomenon based on the kind of explanation it requires seems, by any standards, a particularly bad methodological practice. Yet, this is exactly what the notion of representation-hungry cognition is doing. Perhaps, then, it is time we stop feeding it.

References

Adams, F. (2010). Why we still need a mark of the cognitive. *Cognitive Systems Research* 11, 324–331

¹⁰ The term is a variation on Hutto & Myin's "multi-storey story". See Hutto & Myin 2017: 137.

- Adams, F., and Aizawa, K. (2008). *The Bounds of Cognition*. Malden, Mass.: Blackwell.
- Adams, F., and Garrison, R. (2013). The mark of the cognitive. *Minds & Machines*, 23, 339–352.
- Beer, R. (1995). A dynamical systems perspective on agent-environment interactions. *Artificial Intelligence*, 72(1-2), 173–215.
- Beer, R. D. (1996). Toward the evolution of dynamical neural networks for minimally cognitive behavior. In P. Maes, M. Mataric, J. A. Meyer, J. Pollack, & S. Wilson (Eds.), *From animals to animats 4: Proceedings of the Fourth International Conference on Simulation of Adaptive Behavior*, 421–429. Cambridge, MA: MIT Press.
- Beer, R. (2003). The dynamics of active categorical perception in an evolved model agent. *Adaptive Behavior*, 11(4), 209–243.
- Chemero, A. (2009). *Radical Embodied Cognitive Science*. MIT Press.
- Clark, A. (1996). *Being There*. Cambridge, Mass.: MIT Press.
- Clark, A. (1999). An embodied cognitive science? *Trends in Cognitive Sciences*, 3(9), 345–351.
- Clark, A., and Toribio, J. (1994). Doing without representing? *Synthese*, 101(3), 401–431.
- Degenaar, J., and Myin, E. (2014). Representation-hunger reconsidered. *Synthese*, 191(15), 3639–3648.
- Dennett, D. C. (1978). *Brainstorms*. Cambridge, MA: MIT Press.
- Di Paolo, E. A., Buhrmann, T., and Barandiaran, X.E. (2017). *Sensorimotor Life: An Enactive Proposal*. Oxford University Press.
- Dreyfus, H. L. (ed.) (1982). *Husserl, Intentionality, and Cognitive Science*. MIT Press/Bradford Books, Cambridge.
- Edelman, S. (2003). But will it scale up? Not without representations. *Adaptive Behavior*, 11(4), 273–275.
- Husserl, E. (2003). *Transzendentaler Idealismus. Texte aus dem Nachlass (1908–1921)*. Husserliana 36. R. Rollinger (Ed.). Dordrecht: Kluwer Academic Publishers.
- Hutto, D.D., and Myin, E. (2013). *Radicalizing enactivism: Basic minds without content*. Cambridge, MA: MIT Press.
- Hutto, D. D., and Myin, E. (2017). *Evolving enactivism: Basic minds meet content*. Cambridge, MA: MIT Press.
- Kosslyn, St. M. (1978). Imagery and Internal Representation. In Rosch, E. and Lloyd, B.B. (Eds.), *Cognition and Categorization*. Hillsdale: Lawrence Erlbaum Associates, 217–257.
- Kosslyn, St. M. (1980). *Image and Mind*. Cambridge, Mass.: Harvard University Press.
- Kosslyn, St. M., Thompson, W. L., and Ganis, G. (2010). *The Case for Mental Imagery*. Oxford University Press.

- Marbach, E. (1993). *Mental Representation and Consciousness: Towards a Phenomenological Theory of Representation and Reference*. Dordrecht: Kluwer Academic Publishers.
- McIntyre, R. (1986). Husserl and the Representational Theory of Mind. *Topoi* 5, 101-113.
- Preston, B. (1994). Husserl's non-representational theory of mind. *The Southern Journal of Philosophy*, 32(2), 209-232.
- Ramsey, W. M. (2007). *Representation Reconsidered*. Cambridge University Press.
- Ramsey, W. M. (2017). Must cognition be representational? *Synthese*, 194(11), 4197-4214.
- Rozin, P. & Nemeroff, C. (2002). Sympathetic magical thinking: the contagion and similarity "heuristics". In T. Gilovich, D. Griffin & D. Kahnemann (Eds.), *Heuristics and Biases: The Psychology of Intuitive Judgment*. Cambridge University Press.
- van Gelder, T. (1995). What might cognition be if not computation? *Journal of Philosophy*, 91(7), 345–381.
- van Rooij, I., Bongers, R., and Haselager, W. (2002). A non-representational approach to imagined action. *Cognitive Science*, 26, 345–375.
- Wilson, R. A., & Foglia, L. (2011). Embodied cognition. *The Stanford Encyclopedia of Philosophy*. Zalta, E. N. (ed.), URL = <http://plato.stanford.edu/archives/fall2011/entries/embodied-cognition/>.
- Zahavi D. (2018). Brain, Mind, World: Predictive Coding, Neo-Kantianism, and Transcendental Idealism. *Husserl Studies*, 34(1), 47-61.

Revisions

Explain why I'm targeting C&T 1994. An extensive analysis of the account is still relevant today, not only because the 1. Scaling up objection remains common. 2. But also because C&T's paper contains other ideas and assumptions which are still taken for granted in contemporary cognitive science theory, despite the fact that they shouldn't be, or so I'll argue. Of course, much has happened since the publication of C&T's paper. The anti-representationalist position which in 1994 could still be treated somewhat dismissively has by now developed into the powerhouse which has come to be known as (radical) E-Cognition, which, to the regret of at least one author, is sweeping the planet. Of course, many still remain unimpressed by these newer representation-eschewing approaches, but even the biggest E-sceptic will have to acknowledge that the days in which a theorist could treat the notion of representation as a self-explanatory explanatory posit are finally over. Thanks to the sustained criticism of the antirepresentationalist corner, most theorist now seem to realize that invoking representations comes at a cost. This is not to say, however, that these theorists are actually paying this cost. A more accurate description would be to say that they are working "op krediet". But at least it is acknowledged that invoking representations is a pricy business, and if this is all the anti-representationalist camp has accomplished, it was worth the fight.

Hungry for what, exactly?

If one wants to put forward the involvement of representation as a demarcation criterion for separating genuine from non-genuine cognition, one has to say something about what notion of representation one has in mind. Clark and Toribio, to their credit, acknowledge this. As anyone working in the field knows, there are very different conceptions of representation at work within cognitive science, and this was no different back when Clark and Toribio were writing their paper. So what notion of representation is at play in Clark and

Toribio's account of representation-hungry cognition? What is representation-hungry cognition hungry for, exactly? The authors make it clear from the start that what they have in mind are not the, what they call, 'explicit representations' understood as symbols or symbol strings within a classical cognitive architecture. For although it never really becomes clear why, Clark and Toribio grant the antirepresentationalist that this notion is implausible (see C&T 1994: 414). Instead, they propose a more modest view of representation, based on John Haugeland's generic definition of representation. For a system to count as *modestly* representational

(1)It must co-ordinate its behaviors with environmental features which are not always 'reliably present to the system' via some signal.

(2)It copes with such cases by having something else (other than the signal directly received from the environment) 'stand in' and guide behavior in its stead.

(3)That 'something else' is part of a general representational scheme which allows the 'standing in' to occur systematically and allows for a variety of related representational states. (see C&T 1994: 404)

As the authors admit, this is more of a sketch than an instructive definition, but in the following pages, Clark and Toribio further flesh out their idea of modest representation. Unfortunately, in doing so, it also becomes increasingly clear how deeply confused their notion of modest representation really is. The confusion is all about content.

In recent years, antirepresentationalist authors like Hutto and Myin have been putting more and more pressure on the idea of representations as a semantic content carrying entities. According to Hutto and Myin, explaining cognition by introducing internal representations, understood as content-carrying entities, comes up against, what they call, the Hard Problem of Content.

And although still not everyone agrees on whether there really is a problem here, it seems clear enough that Clark and Toribio's reason for interchanging *explicit* representations for *modest* representations stems from considerations related to content. In certain places in the text, Clark and Toribio *might* even appear to come very close to rejecting content as an indispensable explanatory feature of representation. Consider, for instance, this passage:

It will be our contention, in what follows, that recent attempts to construct general anti-representationalist arguments fail. And that they fail primarily because they apply only to a specific sub-class of types of internal representation viz those which posit explicit, 'moveable' tokens as the bearers of semantic content. (Clark & Toribio 1994: 404-405)

Depending on where the reader puts emphasis, this could be interpreted as either saying that there is a class of internal representation (Clark and Toribio's modest representation) which does not posit moveable tokens (but something else) as the bearers of semantic

content, or as saying that this kind of internal representation should not be understood as bearing any semantic content whatsoever. This latter reading appears to be further underwritten by the fact that Clark and Toribio opt for Haugeland's understanding of representation as 'something standing *in* for', instead of something standing for something else. And indeed, a representation-hungry problem is arguably most aptly described as a problem requiring some kind of stand-in for its solution. However, if some behavior is best explained in terms of the use of a stand-in, mental or otherwise, at no point does this require the involvement of semantic content. A stand-in does not have to stand-for something, nor does it have to be *about* that which it stands in for to do its job. Invoking semantic content here seems both ontologically and epistemologically unnecessary. And indeed, in what is probably the most remarkable passage of their paper, Clark and Toribio seem to be fully agreeing to this content-eschewing story:

The full-blooded computational /representational approach is not at all committed to the existence of inner homunculi who read and understand the putatively representational inner items (see e.g. Dennett,1981). But having given up on inner homunculi, there is no-one except the external modeller to whom the inner structures will *appear* representational. The system just uses the structures; they function within it in a purely causal way. To the extent that our (external, theoretic) best understanding of their cognitive role involves assigning representational contents to them, they are (it seems to us) as full-blooded and genuinely representational as any (non-homuncularist) adherent of a representational/ computational theory of mind ever supposed. (Clark & Toribio 1994: 413)

In light of the central tenets of Clark and Toribio's paper, these lines are puzzling. The passage shows just how confused and confusing these representationalist versus antirepresentationalist discussions can get. In the above, Clark and Toribio seem to be defending a kind of ascriptionism, in which both representation and representational content are to be situated outside the system, and exclusively within the external modeler/interpreter. Furthermore, they claim that this has always been the view of the computational/representational approach. If this is what they are saying, then not only is this simply false, it also seems to be in conflict with their central notion of representation-hungry cognition, which they introduce a few pages later. Regarding the first point, it is simply untrue that representationalism within cognitive science is nothing more than the view that representations exist merely in the eye of the beholder/modeler. If this were all there is to representationalism, then the whole representationalist/non-representationalist debate would be simply absurd. The whole idea of representationalism is precisely that representations, whatever they are exactly, exist as mind-independent as well as system internal entities. If representations would already presuppose a 'full-blown mind' (to use William Ramsey's phrasing¹¹), they wouldn't do us much good in explanations of mind. However – and this is the second point – Clark & Toribio's *mind-dependent, externalist* portrayal of representation isn't only in tension with representationalism in general, it is also

¹¹ See, for instance, Ramsey 2007: 23.

at odds with their own central notion of representation-hungry cognition. What is left of the claim that certain forms of cognitive behavior (i.e. representation-hungry cognition) are best explained by invoking representations, when it is at the same time held that these representations are to be located outside of the cognitive system, i.e. in the minds of the observer/modeler? Clearly, the argument from representation-hunger against the representation eschewing approaches of Brooks, Beer and van Gelder is much stronger than the ascriptionist position espoused above. The following passage, in which Clark & Toribio introduce their argument from representation-hunger as a general argument against these approaches, is particularly revealing:

The basic trouble is one that afflicts all the case studies mentioned above. It is that the kinds of problem-domain invoked are just not sufficiently 'representation-hungry'. Instead they are, without exception, domains in which suitable ambient environmental stimuli exist and can be pressed into service in place of internal representations. (C&T 1994: 418)

If Clark and Toribio might still have been taken as representation-sceptic in the first half of their paper, here it becomes clear

But then again, one might wonder, why not give up on the term 'representation' altogether? If the stand-in does not need to represent that which it stands-in for, why still call it a representation? In Clark and Toribio's case, the answer seems to be that they simply don't think that content has no indispensable role to play here. In other words, despite all indications to the contrary, the reading on which Clark and Toribio's account would not need semantic content is incorrect. Nevertheless,

