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ORIGINAL RESEARCH

Theatre Hunger: An Underestimated 'Scaling Up' Problem

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Abstract
The proponents of ecological and enactive approaches (e-approaches) to cognitive science find common cause in rejecting representation as a core explanatory posit. In its stead, they suggest that cognitive scientists work with non-representational explanations that emphasise embodied interaction. The 'scaling up' objection to e-approaches says that, whilst their non-representational explanatory toolkit might well account for 'basic' cognitive capacities, it will founder when confronted with the 'representation hunger' of 'higher' cognition. Proponents of e-approaches tend to focus their attention upon the scaling up problem posed by truth-conditional language, with it being thought that non-perceptual experiences readily submit to a non-representational analysis. In this paper I argue that non-perceptual experiences possess an oft overlooked, non-linguistic kind of 'representation hunger'— they hunger for a private mental space within which the representational function of standing-in for is performed. I contend that such *theatre hunger* poses serious difficulties for e-approaches which they are presently ill-placed to satiate. Hence, I conclude that the theatre hunger of non-perceptual experiences presents a much more serious problem for e-approaches than is often acknowledged.

1 Introduction

Ecological and enactive approaches to cognitive science (e-approaches) champion a non-representational understanding of mind and are accordingly often thought to face a crippling 'scaling up' problem. Their non-representational explanatory tool kit cannot scale up to accommodate 'representation hungry' aspects of mind, and so they present necessarily incomplete accounts of cognition. The literature on the scaling up problem has tended to focus upon the representation hunger of language. But in

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this paper, I will discuss an oft overlooked kind of representation hunger that I argue e-approaches are incapable of accounting for— the *theatre hunger* of non-perceptual experiences.

I begin by explaining what e-approaches are and providing representative examples of their non-representational explanatory toolkit at work [§ 1]. Then, I outline the argument that such non-representational explanations will not scale up beyond 'basic' cognitive capacities to account for 'higher' ones [§ 2]. Focusing specifically upon non-perceptual experiences, I next argue that they hunger for representation of a rather minimal kind— a private mental space, or Cartesian Theatre, wherein the representational function of standing-in for is employed. This theatre hunger, I maintain, cannot be satiated by the non-representational explanatory apparatus of e-approaches [§ 3]. Next, I respond to the objection that my argument question-beggingly assumes that standing-in for constitutes a representational function. I provide strong reasons for thinking that standing-in for is best understood representationally, and suggest that extant considerations to the contrary veer dangerously close to mere conceptual *stipulations* that cognition is non-representational [§ 4]. Given the foregoing, I conclude that the theatre hunger of non-perceptual experiences presents an oft underestimated, serious scaling up problem for e-accounts of cognition [§ 5].

2 Ecological and/or Enactive Cognitive Science

Ever since the inception of modern cognitive science as a discipline, the position known as "cognitivism" has held sway. It is characterised most fundamentally by its commitment to representational computation as a core explanatory tool. Cognitivist cognitive science restricts mind to brain because it takes the computational software that is the mind to be restricted to, and implemented solely on, the biological hardware of the brain. This understanding of the mind in turn presents a variety of 'poverty of stimulus' (PoS) problems, where our cognitive capacities are concerned; the environment does not provide the brain with enough informational input to allow it to successfully execute cognitive tasks. Representational computation is posited as the brain's means of getting around such PoS problems— by computationally supplementing its meagre environmental input with stored representational knowledge, the brain can successfully execute cognitive tasks despite its impoverished stimulation. Representational computation, accordingly, is the central explanatory posit of mainstream cognitive science [Burge, 2010; Chomsky, 1959; Fodor, 1975; Gregory, 1980; Hohwy, 2013; Marr, 1982]. Let us (briefly) consider two canonical examples of this general approach being put to work— the cases of visual perception and language learning.

When we perceive visually, we encounter rich three-dimensional scenes populated by material objects possessing a variety of properties. We do so even though our retinas capture only sparse two-dimensional information which underdetermines its causal source in the environment. Computational representation processing is posited by cognitivists to explain how the brain solves this 'problem of perception': by supplementing its impoverished sensory input with stored representational knowledge, the brain can overcome the limitations of its stimulation and create three-dimensional

visual representations of what lies beyond it [Burge, 2010; Fodor, 1975; Gregory, 1980; Hohwy, 2013; Marr, 1982].

Noam Chomsky [1959] famously disputed B.F. Skinner's behaviourist theory of language learning on the basis that the linguistic information received by human children radically underdetermines their linguistic abilities. That is, if human children were working solely with the information about language supplied to them by their environment, they would not be able to use language as well as they in fact can. Accordingly, Chomsky's suggestion was that this environmental information must be supplemented with internally stored, representational knowledge of language— if the environment cannot supply the requisite information, then it must be supplied by the brain. Once again, we can see that representation is posited to explain how a given cognitive task— in this case, language acquisition— is achieved. By invoking stored representational knowledge of language, the cognitivist can explain how the linguistic PoS problem is overcome.

Enactive and ecological approaches toward cognitive science— henceforth, e-approaches— are united in rejecting the representational computationalism of cognitivism. They encourage cognitive scientists to look beyond the brain, toward the body and environment in which it is located, when explaining cognition. The proponents of e-approaches argue that in so doing the various PoS problems pondered by cognitivists will be revealed as pseudo-problems. In which case, there is no reason to take the brain to be a representational computer— doing so has no explanatory value. Put shorter, if PoS problems do not actually obtain, then the main rationale for providing representational explanations of cognition is obviated. In representation's stead, the proponents of e-approaches offer 'embodied interaction' as the core explanatory tool for cognitive science. Consider the cases of visual perception and language learning from this angle.

E-approaches conceive of the visual perceptual system as *constituted* by brain, body, and world— the eyes are connected to a brain, which is contained within a body, which interacts with an environment, and this overall brain-body-world system acts in concert when we perceive. If one thinks of visual perception in such terms, then it is no longer clear that there is a problem of perception to be resolved. The information relevant to vision is not restricted solely to the retinal information supplied to the brain, and instead encompasses that unveiled and/or enacted by an embodied agent interacting with their environment. This information is richly informative and, as such, requires no computational supplementation with brain-based representational knowledge. Hence, by taking visual perception to be constituted by brain-body-world causal interactions (as opposed to neural activity alone), e-approaches can explain it *sans* representation [Anderson, 2014; Chemero, 2009; Hutto & Myin, 2013; Gibson, 1979; Thompson, 2007; Varela et al., 1991].

Language learning, too, is explained by the proponents of e-approaches in terms of embodied interaction. They argue that, by virtue of being ensconced in social communities, linguistic beings become encultured into the skilled practices characteristic of language: the giving and taking of reasons, the use of public symbols to stand-in for certain states of affairs, and so on. Things being so, it is contended that there is plenty of socio-cultural instruction of the kind requisite for the acquisition of linguistic skill. Which means that there is no linguistic PoS problem requiring the

positing of brain-based representational knowledge to explain its overcoming. Some proponents of e-approaches take language to differ starkly from a cognitive capacity like perception. Whilst thinking that mastery of both is predicated upon non-representational cognitive skill, they contend that language possesses a representational aspect which is lacking in perception; linguistic thought is truth-evaluable in a way that perception is not [Hutto, 2007; Hutto & Myin, 2013; Hutto & Myin, 2017]. Others, however, think that all cognitive capacities lie on a non-representational continuum. Accordingly, though linguistic skill may be much more sophisticated than that of perception, it is nevertheless still a skill exemplifying of no representational components [Bruineberg et al., 2019; Di Paolo et al., 2018; Kiverstein & Rietveld, 2018; Kiverstein & Rietveld, 2021; Noë, 2015].

In summary: e-approaches diverge from cognitivist cognitive science by rejecting representational explanations of cognition. They offer in their stead non-representational explanations which emphasise embodied (agent-environment) interaction as key to understanding cognition.

3 The 'Scaling Up' Problem

One of the biggest issues facing e-approaches is known as "the scaling up problem". The pressers of this problem typically grant— at least for the sake of argument— that the non-representational explanatory apparatus of e-approaches can indeed account for 'basic' cognitive capacities like perception. But they express scepticism that the same apparatus can account for 'higher' cognitive capacities, such as language. Hence, the contention that e-approach explanations will not 'scale up' from lower to higher cognition.

Consider in this vein my present perception of a coffee cup. Abstracting from the nitty-gritty specifics, it does indeed look like embodied interaction can shoulder its explanatory burden in this context. I am an embodied agent who, in virtue of my history of sensorimotor coupling, has developed the skill to unveil and/or enact a direct relation between myself and the cup. The proponents of e-approaches consider this sensorimotor skill to be of a non-representational, knowledge-how variety. Moreover, since its exercise directly relates me to the cup, the cup can 'serve as its own best model' and so there is no need for me to represent it 'inside the head'. Thus, perception does look explainable entirely in terms of non-representational embodied interaction [Anderson, 2014; Chemero, 2009; Hutto & Myin, 2013; Gibson, 1979; Thompson, 2007; Varela et al., 1991].

When we move beyond such basic cognitive capacities, however, embodied interaction's explanatory credentials become increasingly strained. Consider first non-perceptual experiences like dreams, hallucinations, mental imagery, and thought. There is nothing obviously embodied about dreaming, for instance, and it is not clear what kind of skilled, practical know-how dreaming could be predicated upon. Nor, when we dream, is there any kind of environmental object capable of 'serving as its own best model'; though the environment may well causally impact upon the nature of our dreams, there is no real sense in which it is partially constitutive of them. Since neither embodied action nor the environment seem to play any kind of genuinely

constitutive role in dream experiences, the explanatory resources of e-approaches look ill-placed to accommodate them. This self-same consideration extends beyond dreams to apply to experiences like hallucination, imagery, and thought. Thus, e-approaches appear to be explanatorily toothless when it comes to accounting for non-perceptual experiences writ large.

Perhaps even more difficult to account for with non-representational explanatory tools is the phenomenon of language. Language looks to be, almost by definition, representational in nature— it possesses propositional content, it is truth-conditional, and so on. Indeed, that it is difficult to explain language *sans* representation is perhaps best evinced by the fact that even some proponents of e-approaches acquiesce to representational explanation, where linguistically scaffolded cognition is concerned [Hutto, 2007; Hutto & Myin, 2013; Hutto & Myin, 2017]. But of course, as also previously noted, many e-theorists take the explanatory tool of embodied interaction to be fit even for providing a non-representational explanation of the seemingly representational aspects of linguistic cognition [Bruineberg et al., 2019; Di Paolo et al., 2018; Kiverstein & Rietveld, 2018; Kiverstein & Rietveld, 2021; Noë, 2015].

I have just listed two cognitive phenomena which present a scaling up problem for e-approaches: non-perceptual experiences and language. E-theorists writing on the scaling up problem tend to focus most of their argumentative efforts upon accounting for linguistic cognitive phenomena, with non-perceptual experiences often taken to be rather straightforwardly accounted for in non-representational terms [Bruineberg et al., 2019; Di Paolo et al., 2018; Hutto, 2007; Hutto, 2015; Hutto & Myin, 2017; Kiverstein & Rietveld, 2018; Kiverstein & Rietveld, 2021]. Conversely, I shall contend that non-perceptual experiences present a much-underestimated scaling up threat to e-approaches, one which might well put paid to the putatively expansive reach of their non-representational explanatory tools.

4 The Theatre Hunger of Non-Perceptual Experiences

As our exemplar of non-perceptual experiences, let us once more consider the case of dreaming. It might *prima facie* appear that dreams demand a representational explanation. For one, it looks like dreams *misrepresent* the nature of one's environment in a quite straightforward way— one experiences the presence of non-existent objects. Put otherwise, when dreaming one experiences *absent* phenomena. Secondly, when dreaming one also looks to experience *abstract* qualities, those not directly 'given' to us in the experience itself. For example, one is sensitive to the shape of a dreamt coffee cup and the fact that it is a coffee cup, even though no such information is directly supplied by the sensations responsible for and/or constitutive of dream experiences. Given their lack of 'givenness', it looks like abstract properties must be represented in dream experiences (otherwise, how could we be aware of them?). Dreams, in short, exemplify the 'representation hungry' characteristics of absence and abstractness. It is accordingly difficult to see how the non-representational explanatory tools of e-approaches would be able to account for them. This is the scaling up problem that dreams— and non-perceptual experiences writ large— present for e-approaches [Clark & Toribio, 1994; cf. Degenaar & Myin, 2014].

In this section, I canvas a range of e-attempts— ecological-enactive and radical enactive, sensorimotor enactive, and (vanilla) enactive— to account for dreams *sans* representation. I argue that each fails for effectively the same reasons, and that representational explanations are better placed to account for dreaming. Thus, I conclude that the scaling up problem posed by non-perceptual experiences to e-approaches is much more severe than is commonly recognised.

4.1 The Ecological-Enactive and Radical Enactive Explanation of Non-Perceptual Experience

The proponents of ecological-enactive accounts aim to marry the insights of ecological psychology[1]— emphasising especially the ecological concept of "affordance"— and enactivism within the one framework [Rietveld & Kiverstein, 2014; Kiverstein & Rietveld, 2018]. Radical enactivists, meanwhile, press hard on the anti-representationalism of enactivism; they argue that an emphasis upon embodiment and embeddedness obviates the need for the (anti-naturalistic) positing of representation [Hutto & Myin, 2013; Hutto & Myin, 2017]. Whilst there are differences between these approaches— chiefly concerning the representational status of linguistic thought— both endorse the same response to the scaling-up problem posed by non-perceptual experiences (hence my tackling them together). In short, ecological-enactivists and radical enactivists alike accuse the proponents of the scaling up problem of employing a question-begging argument.

Dreams, it is contended, simply involve partial re-enactments of the kinds of activities which occur when one perceives (e.g. extremely similar brain activity). And re-enactment alone does not beget the presence of representation: if perception is (correctly) categorised as non-representational, then it is not obvious why we should think that a re-enactment of perceptual experience would suddenly bring into being representational properties [Degenaar & Myin, 2014; Hutto, 2015; Hutto & Myin, 2017; Kiverstein & Rietveld, 2018]. Moreover, the very idea that dreams could possess truth-conditional correctness conditions is also questioned by the ecological-enactivist/radical enactivist. What would it mean, after all, to dream 'correctly' versus 'incorrectly'? [Hutto, 2015; Hutto & Myin, 2017]. The fact that dreams concern the absent, then, does not give us reason to think that they must thereby be explained in representational terms.

Where the tracking or recognition of abstract properties is concerned, the ecological-enactive/radical enactive response to this aspect of the scaling up problem once more questions why this capacity must be explained representationally. Although it might well be necessary to posit a cognitive mechanism causally responsible for this tracking/recognition, it is not obvious that such a mechanism must be representational in nature. Indeed, the idea that it must be looks as though it is predicated upon

[1] No proponent of ecological psychology has, so far as I am aware, directly responded to the scaling up problem presented by non-perceptual experiences. Some have, however, argued for a positive disjunctive account of experience [de Carvahlo, 2021; Warren, 2005]. I critically discuss positive disjunctivism in the context of the scaling up problem in [§ 3.2.1.]. My conclusion there— that sensorimotor enactive positive disjunctivism fails in its endeavour to explain non-perceptual experiences *sans* representation— applies equally to an ecological psychological version of positive disjunctivism.

nothing more than an a priori *assumption* that cognition concerning the abstract is necessarily representational [Degenaar & Myin, 2014]. But it could just as well be the case that we are perceptually sensitive to abstract properties— and re-enact this sensitivity when dreaming— without thereby representing them.

In short, the proponents of ecological-enactive and radical enactive approaches contend that no good reasons have been given for thinking that non-representational explanations of experiences concerning the absent and the abstract cannot be provided. Consequently, e-approaches are threatened by the scaling up problem that non-perceptual experiences present only to the extent that question-begging arguments are to be indulged. Which means that they are not threatened by it at all.

4.1.1 Contra the Ecological-Enactive and Radical Enactive Explanation

This e-response— that (non-perceptual) cognition concerning the absent and abstract does not *ipso facto* beget a representational explanation— sounds right so far as it goes. But it does not entail that we lack good reasons for thinking that the best explanation of non-perceptual experiences will indeed be a representational one.

The absent and abstract criteria of representation hunger have something core in common— the functional role of 'standing-in for' (cf. [Clark & Toribio, 1994, pp. 404–405]). A natural way to explain how cognition can concern absent phenomena is that a representation is employed to stand-in for the absent entity in question. Relatedly, that an entity or mechanism represents abstract properties by standing-in for them provides a neat explanation of their being tracked. Standing-in for is a paradigmatically representational kind of functional role: maps of bus routes represent by standing-in for the routes taken by actual buses on real-world roads, a written name represents a human being by standing-in for them, members of a sports team represent their country by standing in-for it, and so on and so forth. It is difficult to see how non-perceptual experiences could be explained without invoking the standing-in for functional role and, as such, representation.[2]

Consider first the argument that dreams— which shall once more serve as our representatives(!) of non-perceptual experience writ large— are not, by virtue of concerning the absent, *ipso facto* representational. This argument proceeded on two (inter-related) fronts: a re-enactment of a non-representational (perceptual) experience does not beget representation; and, dreams are not the kind of thing which could possess semantic 'correctness conditions' anyhow. Viewed in the light of the standing-in for representational role, it is no longer clear that this argument passes muster.

For one, there is a salient difference between perceptual and dreaming experiences. When I perceive a coffee cup there is— according to e-approaches— no need for representation. By exercising my non-representational perceptual skills, I can unveil and/or enact a direct perceptual relation between myself and the cup, with the cup itself 'serving as its own best model'. But no such similar explanation is avail-

[2] It is open to the e-theorist to deny that the standing-in for functional role is a representational one. In [§ 4], I defend the claim that standing-in for is best understood in terms of representation and so, for now, shall simply assume it. If the reader is particularly concerned that this might constitute a question-begging move against the e-theorist, I would encourage them to skip ahead to [§ 4] before proceeding any further.

able, where dreaming of a coffee cup is concerned: no active, skilful engagement with the extra-organismal environment occurs when we are sleeping (we are behaviourally 'dead to the world'), and there exists no coffee cup to serve as its own best model. It is thus not clear how one could maintain that dreaming simply involves a non-representational re-enactment of perceptual experiences; the ingredients key to providing a non-representational e-explanation of perception are all missing in the case of dreaming.

Especially since a non-representational, embodied interaction explanation of dreaming does not deliver the goods, the most natural, obvious way to explain a dream experience is via representational standing-in for. The reason that we experience a coffee cup in our dream is that an entity is tokened, or a mechanism is made use of, to stand-in for the (non-existent) cup. Since this entity or mechanism plays a recognisably representational function— that of standing-in for— it is best understood to constitute a representation.

Conceiving of the dreamt cup as experienced because an entity or mechanism functions to stand-in for it also looks to blunt the charge that dreams could not be representational because they lack conditions of satisfaction. It is typically granted by all that a minimal requirement for the existence of representation is that there is the possibility of misrepresentation. And the ecological-enactive/radical enactive argument for according a non-representational status to dreams is that, since there is no correct versus incorrect way to dream, dreams lack the ability to misrepresent. For instance, if I dream of a coffee cup which walks about and can pass through physical barriers, there is no real sense in which I have dreamt incorrectly; I have not misrepresented anything because there is no way to say how this dream ought to have correctly proceeded. The claim that dreams are representational by virtue of being predicated upon the tokening and/or use of cognitive stand-ins is untouched by this argument. If a coffee cup is present in a dream by virtue of an entity or mechanism standing-in for it, then there is a very real sense in which the dream can properly be said to misrepresent; the entity or mechanism in question is standing-in for a non-existent object and, hence, (mis)representing the presence of an object which is not actually there. (This is why we can be mistaken about how things are when we dream). One can maintain this thesis whilst nevertheless agreeing that there is no (in)correct way to dream. This is because the possibility of misrepresentation does not present itself where the nature of one's dreams is concerned. Rather, it is present by virtue of the fact that, whatever it is that you happen to dream, your experiences are predicated upon the use of entities which function to stand-in for non-existent phenomena. Put shorter, whilst it is true that there is no (in)correct way to dream, what one's dreams say about the world— by virtue of standing-in for it— does admit of correctness conditions.

Pretty much the same considerations apply when it comes to the representation hunger of non-perceptual experiences' abstract properties. A representational explanation of the tracking of abstract properties in dreams— my experiencing the shape of the dreamt coffee cup and recognising it as a coffee cup— may not be a priori required. But it is nevertheless hard to see how such tracking might be explained *sans* representation. To (partially) repeat an earlier point, there is in this case no environmental object to be skilfully engaged with, no real-world coffee cup to self-model its abstract properties, and so a non-representational e-explanation will not get us very

far. Conversely, we do look to get a better explanation by taking the abstract properties tracked in dreams to be present by virtue of their being represented. If the dreamt coffee cup is present in my dream because an entity or mechanism functions to stand-in for it, then this stand-in can bear the explanatory burden of accounting for the cup's abstract properties; the stand-in represents the cup as possessing a certain shape, as being a coffee cup, and so on, and that is why it is experienced as such.

To summarise: e-theorists reject the claim that non-perceptual experiences can *only* be explained representationally. Whilst open to the possibility that non-perceptual experiences *could* be explained *sans* representation, I have nevertheless argued that they are best explained in terms of representation. The best explanation of non-perceptual experiences is that our cognitive systems token entities or make use of mechanisms which function to stand-in for (typically) non-existent objects; that is why we experience their presence and properties as we do. Since standing-in for is a paradigmatically representational function— and see [§ 4], for an extended defence of this claim (cf. [ft. 2])— it follows that the best explanation of non-perceptual experience is a representational one.

4.2 The Sensorimotor Enactive Explanation of Non-Perceptual Experience

Sensorimotor enactivism (SE) maintains that agents instantiate direct experiential linkages with their environments by exercising sensorimotor understanding (non-propositional knowledge of the law-like relation between sensation and movement) [Noë, 2004; O'Regan & Noë, 2001; O'Regan, 2011]. The proponents of SE have proposed both positive and negative disjunctivist understandings of (non-perceptual) experience.

Disjunctivists take there to be a metaphysical distinction between perceptual and non-perceptual experiences— each constitutes a wholly different type of experience. Positive disjunctivists provide a positive characterisation of both kinds of experience, and SE accounts of non-perceptual experience tend to be of this sort:

> Extreme cases of perception without action are dreaming and hallucinations. Here, presumably brain systems that usually signal that certain sensorimotor contingencies are being exercised become activated without external stimulation and without motor action. Another possibility is that the brain systems that govern cognitive access incorrectly judge that they have received confirmation from the systems registering the sensorimotor contingencies. Under both possibilities the result is that the self believes itself to be having veridical experiences.
> In this explanation of dreams and hallucinations, SMT [sensorimotor enactivism] appeals to the brain. [O'Regan, 2023, p. 6]

The idea being propounded here is that, although perceptual experience is constituted by agent-environment interactions, non-perceptual experience is constituted by neural activity alone. And the reason non-perceptual experiences appear perception-like is that the neural activity responsible for them is similar to that which occurs/is reg-

istered during the course of world-involving perceptual experience [Barkasi, 2021; Noë, 2004, ch. 7; O'Regan, 2023].

Negative disjunctivism differs from its positive cousin by adopting a 'no comment' approach toward non-perceptual experiences. It says that non-perceptual experiences can only be negatively characterised: they are experiences which seem perceptual but are not, and nothing further can be said about them [Fish, 2009; Martin, 2004]. Alva Noë—a founding proponent of SE—recanted his endorsement of positive disjunctivism, later contending that SE should be understood as a negative disjunctivist thesis [2012, p. 73].[3]

4.2.1 Contra the Sensorimotor Enactive Explanation

The problem with SE's positive disjunctivism is that it is difficult to see how it could work *sans* representation.[4] It explains non-perceptual experiences to be caused by neuronal activations like those which occur during perception. The best— and, so far as the extant literature is concerned, perhaps only— arguments for non-representationalism in this context are two-fold: (1) if perception is non-representational, then so too will be a non-perceptual re-enactment of perceptual experience; (2) there is no (in)correct way to experience non-perceptually and, as such, it makes little sense to conceive of non-perceptual experience as representational in nature. I have already highlighted the weaknesses of these arguments.

When I perceive a coffee cup, I engage in embodied interaction— in SE terms, I exercise sensorimotor know-how— which directly relates me to the cup that serves as its own best model. The cup is present in the real-world and can self-model its various abstract properties. However, when I dream of a coffee cup, I engage in little, if any, sensorimotor interaction with the world. And certainly, I do not perform the actions typically engaged in when perceiving. Accordingly, there is no obvious sense in which sensorimotor know-how is exercised. Moreover, there is no cup present when I dream, and so no environmental object to self-model cup-related abstract properties. Thus, the SE explanatory tools which work so well to capture perception look simply inapplicable when it comes to accounting for non-perceptual experience. To borrow the terminology used by Melanie Rosen in her systematic, empirically driven critique of SE accounts of dreaming in this vein, dreaming is *in*active, not enactive [2018].

A better explanation of the experience of a dreamt coffee cup will invoke representation. The reason that a cup is experienced in the dream is that a cognitive entity or mechanism functions to stand-in for the non-existent coffee cup and its abstract

[3] Negative disjunctivists worry that, if one grants that some experiences do not involve direct relations to the environment, this sets in motion a slippery slope toward the conclusion that no experiences involve direct relations to the environment. Hence, they are reticent to provide any positive characterisations of non-perceptual experience. Noë is not explicit as to why he changed his position, but it is likely that his change of heart was motivated by such considerations.

[4] SE's canonical formulations did not, strictly speaking, promote non-representationalism [Noë, 2004; O'Regan & Noë, 2001; O'Regan, 2011]. However, they were interpreted in this vein, and its proponents did later contend that SE is, indeed, best understood as full-bloodedly non-representational in nature [Degenaar & O'Regan, 2015; Noë, 2012].

properties. That the entity or mechanism stands-in for the dreamt object also explains why the dream can be said to constitute a misrepresentation, even though it makes little sense to speak of dreaming (in)correctly— an absent object is being (mis)represented as present. By invoking representation, we can explain why a coffee cup is experienced during a dream [§ 3.1.2.]. Hence, a representational explanation of non-perceptual experience succeeds where the non-representational, positive disjunctivist SE account fails.[5]

The negative disjunctivist version of SE has the following to say about non-perceptual experiences:

> For in perfect hallucination, the mistake is more radical. It is not that you misidentify what you are in contact with; it is that you take yourself to be encountering the world (to be having an experience), when you are not. The mistake, then, is that you take yourself to be *in contact* with something, when you are not. And there is no need…to explain that possibility by supposing that you are, in such a case, *really* in contact with something else. There need be nothing there, and so no real experience. [Noë, 2012, p. 73, *emphasis in original*]

In this quotation, Alva Noë explicitly states that non-perceptual experiences— those wherein you are not in direct perceptual contact with the world—are not proper experiences. When they occur, there is "no real experience." Importantly, he declines to say anything further about non-perceptual experiences. Thus, Noë effectively denies that there is an *explanandum* (of non-perceptual experience) requiring of an *explanans*.

This negative disjunctivist stance does effectively discharge the problems facing positive disjunctivist SE (which we have seen struggles to account for non-perceptual experience *sans* representation). If we deny that non-perceptual experiences require a positive explanation, then the fact that they appear to possess representation hungry characteristics is irrelevant; we do not need to explain non-perceptual experiences and so do not need to non-representationally sate their representation hunger. However, this evasion of the scaling problem comes at the expense of an extremely unpalatable view of non-perceptual experiences.

It is very, very difficult to swallow the claim that non-perceptual experiences are not genuine experiences, and that all that can be said about them is that they appear perceptual but are not. We are intimately familiar with non-perceptual experiences in our everyday lives, people indeed intentionally seek them out, and we now even possess a burgeoning science aimed at elucidating their nature and its implications for our understanding of consciousness writ large [Clark, 2012; Letheby, 2021; Pearson et al., 2015; Rosen, 2018; Seth, 2021; Windt, 2015]. These everyday and scientific facts look to directly contradict the claim that non-perceptual experiences are only pseudo-experiences whose nature cannot be positively characterised.

[5] This critical assessment of SE's positive disjunctivism, as earlier mentioned [ft. 1], can be applied *mutatis mutandis* to the positive disjunctivism encouraged by ecological psychology. Ecological psychology therefore also looks incapable of scaling up its non-representational explanation of perception to account for non-perceptual experience.

Moreover, a negative disjunctive stance is especially difficult to motivate in the context of enactivism. SE— like most enactivist positions— aims at elucidating the phenomenology of experience. And that it rings true to 'what it is like' to experience is supposed to constitute one of the strongest reasons for endorsing the view [Ward, 2012]. To adopt this perspective toward perceptual experience, whilst simultaneously declining to positively discuss 'what it is like' to non-perceptually experience, looks suspiciously *ad hoc* and rather contradictory.

4.3 The Enactive Explanation

Enactivism, in its canonical formulation, commits to a core continuity between life and mind. Living systems self-organise a boundary between themselves and the world, and their existence is accordingly precarious, because dependent upon maintaining viability within this boundary. This way of being is hypothesised to come concomitant with minded characteristics: a sense of subjectivity (a self-world distinction) possessing of valence (circumstances can be *good* or *bad* for the system). So, for the enactivist, with life comes mind. Enactivist accounts therefore emphasise the living organism's phylo- and onto- genetic history, as well as its embodiment and embeddedness, as core to understanding the precise nature of its minded reality [Di Paolo & Thompson, 2014; Thompson, 2007; Varela et al., 1991].

Solomonova and Sha (2016) provide a nicely succinct enactive account of dreaming, one representative of the tradition writ large (cf. [Thompson, 2014]). They explain dreaming to constitute a creative act of imagination strongly influenced by the dreamer's embodiment and environment, their oneiric situatedness. Indeed, Solomonova and Sha argue that we enact our dreams in much the same way that we enact our perceptual experiences:

> [D]reaming can be seen as a process of enacting and sense-making of the subjectivity textured by memory traces and motivated by affect. [2016, p. 409]
> Despite the superficial view that dreaming is a solitary experience, the dreamer is rarely alone, and the dream world is rich with interactive elements that orient and motivate the dreamer. [ibid., p. 412]

For enactivists, perceptual and dream experiences alike are considered enacted, with their nature influenced by relevant embodied, embedded, and historical factors. Consequently, both perceptual and non-perceptual experiences are thought amenable to a non-representational, enactive explanation.

4.3.1 Contra the Enactive Explanation

The (by now familiar) problem with the proposed enactive account of dreaming is that it is not clearly workable *sans* representation. Enactivists explain perceptual experiences in terms of enacting a co-constitutive relation between the embodied experiencer and the real-life things being experienced; we perceive existing objects in the environment by interacting with them, and these objects serve as their own best (relational) model of their various enacted, abstract properties. But in dreaming, one is behaviourally inert and so not

directly interacting with one's physical environment. Moreover, the objects experienced are not actually present, which means that they cannot (relationally) self-model their (co-constituted) abstract properties. These key differences between perceptual and dreaming experiences make it difficult to see how the enactive account of perception could be straightforwardly applied to non-representationally explain non-perceptual experiences.

Indeed, the best way to explain the enactivist characterisation of dreaming seems to be *via* the invocation of representation. The idea that "the dream world is rich with interactive elements that orient and motivate the dreamer" [ibid. p. 412] looks most intelligible on the assumption that this interaction and these elements are present by virtue of being represented. Since the dreamer is not engaging in embodied actions like moving about (they are asleep), it is natural to say that they simply (mis)represent themselves as moving. Relatedly, given that the objects they dream of interacting with are not actually present, that they are (mis)represented as present and as possessing various properties looks to nicely explain their being experienced. In all such cases, that the cognitive system tokens entities or makes use of mechanisms to stand-in for the phenomena in question looks to best explain how they come to be experienced during a dream. Furthermore, this would also explain why dreams possess a representational status, even though there is no (in)correct way to dream: the dream (mis)represents by standing-in for (typically) non-existent goings-on. Thus, a representational *explanans* looks best suited to accounting for the *explanandum* of dreaming endorsed by enactivists [§ 3.1.2.].

4.4 Theatre Hunger

What I have, until now somewhat obliquely, been getting at it is that non-perceptual experiences hunger for a specific kind of representational explanation. This explanation is not that which is usually associated with linguistic representation— the possessing of Fregean sense, of intensionality, or of some other kind of robust truth-conditional content— but rather concerns a weaker sense of representing, that of standing-in for. Non-perceptual experiences look to exemplify such representation hunger because, when we dream, hallucinate, or create a mental image of a given object, its (illusory) presence looks best explained by the cognitive system making use of an entity or mechanism to function as a stand-in for the (typically) non-existent object. Since standing-in for is a paradigmatically representational function, it follows that non-perceptual experiences are best explained by adverting to representation. To distinguish this representation hunger from its more linguistically loaded cousin, I propose the label "theatre hunger" to refer to it: non-perceptual experiences hunger for the positing of a private, internal mental space— a *Cartesian Theatre* [Dennett, 1993]— within which objects, people, and states of affairs are (mis)represented by mechanisms which function to stand-in for them.

It is important to point out that, in positing theatre hunger as core to non-perceptual experiences, I am not requiring that there be a place in the brain wherein the magic of consciousness happens as 'it all comes together'. (This was the picture of experience which Daniel Dennett, the originator of the 'Cartesian Theatre' moniker, endeavoured to refute). What I am rather saying is that non-perceptual experiences hunger for an internal space wherein cognitive mechanisms function to stand-in for (typically) non-existent things external to that space. Thus, theatre hunger's key attribute is that of internality— representations housed inside the brain enable experiences of (typically) non-existent extra-neural

goings-on by virtue of functioning to stand-in for them. Such internality is something that e-approaches' non-representational explanatory tools struggle to accommodate.

5 Is Standing-In for a Representational Function?

The proponents of e-approaches contend that there are no good reasons for ruling out *a priori* the possibility of providing non-representational explanations of non-perceptual experiences. Granting this, I have nevertheless provided an inference to the best explanation argument favouring representational accounts of non-perceptual experience:

1. E-approaches' non-representational explanatory resources have no obvious purchase when it comes to accounting for non-perceptual experience.
2. A representational account of non-perceptual experience, one which explains it in terms of cognitive mechanisms standing-in for (typically) non-existent extra-neural phenomena, is readily forthcoming.

Therefore.

3. We ought to prefer representational explanations of non-perceptual experience over non-representational ones, as they better account for it.

At this point, however, all is not necessarily lost for the e-theorist. Just as they question the claim that cognition concerning the absent and abstract must *ipso facto* be representational in nature, e-theorists can also question the claim that the standing-in for functional role is a representational one. Certainly, I have heretofore provided no argument in favour of this contention. So, what reason do we have to understand standing-in for representationally as opposed to non-representationally? It could very well be the case that cognitive entities or mechanisms which function to stand-in for (typically) non-existent goings-on perform their important cognitive work *sans* content [Hutto, 2015; Hutto & Myin, 2017]. In which case, theatre hungry experiences would not present a serious scaling up problem for e-approaches.[6]

It is true that one *could* adopt a non-representational understanding of the standing-in for functional role. However, I submit that there is little reason to do so, and that this functional role is best understood in terms of representation. To see why, it will be helpful to begin by considering a widely adopted account of representation voiced by John Haugeland:

> If the relevant features are reliably present to the system (via some detectable signal) whenever the adjustments must be made, then they need not be represented…But if the relevant features are not always present (detectable), then they can, at least in some cases, be represented; that is, something else can stand in for them, with the power to guide behaviour in their stead. That which stands

[6] My thanks to an anonymous reviewer for pushing me on this point; their constructive critical appraisal made it clear to me that I had initially missed this important e-response, to the detriment of my argument.

> in for something else in this way is a *representation*; that which it stands in for is its *content*; and its standing in for that content is *representing* it. [Haugeland, 1992/2019, p.106, *emphasis in original*]

E-accounts of cognitive capacities like perception are typically considered non-representational because "the relevant features are reliably present to the system". Since the world serves as its own best model, there is no need to represent it when executing the cognitive task in question. A primary reason for thinking that this makes representation surplus to explanatory requirements is that the cognitive operation can be explained entirely in terms of causal covariational interactions between (parts of) the agent-environment system. And causal covariation, taken standalone, does not admit of the possibility of misrepresentation. Which means that it does not constitute representation. Hence, cognitive capacities like perception admit of successful non-representational explanation [Anderson, 2014; Chemero, 2009; Hutto & Myin, 2013; Gibson, 1979; Ramsey, 2009; Thompson, 2007; Varela et al., 1991].

Cognition typified by the standing-in for functional role looks to differ from that exhausted by causal covariational (agent-environment) interactions. The standing-in for functional role, unlike that of causal covariation, is often considered inextricably intertwined with representation because it looks to come concomitant with the possibility of misrepresentation. Consider in this vein a map of a city's bus route network. That the map serves as a stand-in for the routes taken by buses makes it look almost inexorably subject to correctness conditions— it will be (in)accurate to varying degrees, depending upon the extent to which the bus route network that it stands-in for is as the map depicts it. Standing-in for therefore looks to naturally invoke and/or accommodate correctness conditions, and so the possibility of (mis) representing, in a way that causal covariation does not.

It is likely for this reason that Haugeland's understanding of representation in terms of standing-in for enjoys widespread acceptance in the philosophy of cognitive science and is regularly drawn upon in the waging of representation war (e.g. [Clark & Toribio, 1994, pp. 404–405; Orlandi, 2015, p. 9; Rowlands, 2017, p. 4221; van Gelder, 1995, p. 351]). Going beyond the case of Haugeland, it is common to see theorists endorsing an account of representation which takes it to be present when a standing-in for functional role is fulfilled (e.g. [Ramsey, 2009, xi, xiv, p. 25; Shapiro, 2019, p. 182; Smith, 1996, p. 220]). Thus, as Bill Bechtel nicely puts it, "there is a good deal of agreement about the importance of the standing-in aspect of representations" [1998, p. 298].

Indeed, the empirical literature on non-perceptual experiences tends to consider them representational precisely because they are underlain by cognitive mechanisms which function to stand-in for (typically) non-existent goings-on. Though I have only described such accounts at a rather abstract, general level in this paper, extremely detailed proposals in this vein are prevalent in the empirical literature (e.g. [Clark, 2012; Pearson et al., 2015; Rosen, 2018; Seth, 2021; Windt, 2015]). That non-perceptual experiences misrepresent by standing-in for (typically) non-existent goings-on is thus considered of much explanatory import and relevance in cognitive scientific accounts thereof.

E-accounts of cognitive capacities like perception tend to gain their non-representational explanatory bite from the fact that they traffic only in the non-representational functional role of causal covariation. A cognitivist could respond to this by maintaining that,

in fact, causal covariation does constitute a representational function. But such a response would be facile:

> [T]he possibility of misrepresentation is built into our ordinary way of understanding what it is to represent. If someone announced that they were using a technical notion of representation that didn't admit of misrepresentation, we would not think that this is just another way of handling the problem of error. Instead, we would think that whatever the posited state was doing, it wasn't playing a representational role. 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, 2009, p. 12]

Put otherwise, the cognitivist who takes causal covariation alone to amount to representation would be providing an account which is representational in name only. They would be *stipulating* that a flagrantly non-representational functional role is representational, with their reasons in support of this contention derived solely from a conceptual definition of their own creation.

Precisely the converse situation looks to hold, however, where (e-)accounts of non-perceptual experience are concerned. Standing-in for is considered an exemplar representational functional role in very much the same way that causal covariation is considered an exemplar non-representational one. Moreover, this consideration plays a driving role in the development of empirical accounts of non-perceptual experience which take it to be representational in nature. If an e-theorist were to accept such accounts whilst simply denying them a representational status, then they would look to be making a similar error to that of the above (hypothetical) cognitivist. They would be taking a flagrantly representational functional role and stipulating, via conceptual fiat, that it is non-representational in nature. Consequently, the non-representational account provided would be non-representational in name only.

E-theorists rightly object to cognitivist definitions of cognition which equate it with representation and, as such, rule out the possibility of non-representational cognition by armchair decree [Hutto & Myin, 2013; Ramsey, 2009]. But 'Ramsey's rule' (cf. [Hutto, 2015])— that victories in the representation wars can only be won via empirical means, and not through armchair conceptual stipulation [Ramsey, 2017]— cuts both ways. So the e-theorist needs to be careful to ensure that they do not make a converse error to the cognitivist, by stipulating that cognition is, simply by definition, non-representational.

In summary (of this section): I have argued that the standing-in for functional role is best understood representationally, and that it is hard to see how extant e-rejections of this claim amount to anything other than a conceptual stipulation to the contrary.

6 Conclusion

E-approaches reject the representational explanations of cognition offered by cognitivist cognitive science. In representation's stead, they emphasise non-representational embodied interaction as core to explaining and understanding the mind. The viability of

e-approaches is often disputed on the basis that they face a scaling up problem: their non-representational explanatory tools will not extend beyond basic cognitive capacities (like perception) to account for higher cognitive capacities (like non-perceptual experience or language). In this paper I homed in on the scaling up problem that non-perceptual experiences present, maintaining that they cannot be as easily accommodated in non-representational terms as proponents of e-approaches often contend. I argued that non-perceptual experiences hunger for a particular kind of representation— that of standing-in for (typically) non-existent phenomena in an internal mental space, or Cartesian Theatre. And I contended that, whilst representational accounts of cognition are well placed to assuage such theatre hunger, e-approaches are not. In response to the objection that standing-in for could well constitute a non-representational function, I maintained that it is best understood representationally, and that extant e-rejections of this claim look predicated upon a conceptual stipulation to the contrary. Thus, I conclude that the theatre hunger of non-perceptual experiences presents a much more serious problem for e-approaches than is typically acknowledged.

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