animates a range of applied enquiries – into the enculturation and ongoing formation of dynamic individuals in specific cultural or bodily contexts, such as domains of expertise, and increasingly also into normative or political factors that drive interest-dependent processes of individualization, which are vital pragmatic considerations not mentioned by D&K. Because cognitive agency is partly ascribed or *granted*, entrenched power structures can reduce or remove it. To take one example, in brilliant ethnographic work on migrant workers who are marked as unskilled, Natasha Iskander (2019, 2021) shows in detail how diachronic agency is actively and systematically denied as many are forced to give up futures. It is just because individualization is a fragile process, and because boundaries are hard-won achievements, that anti-individualists who highlight the multiplicity, heterogeneity, and dynamism of cognitive ecologies must reconfigure rather than eliminate or efface the individual.

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Is Sympoiesis Compatible with Phenomenology?

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> Abstract • I concur with Dengsø and Kirchhoff that if we are to ground cognition more deeply in contemporary biology, we need to focus on the organism–environment relationship as the unit of biological explanation most relevant to cognitive science. This entails questioning the individualistic bias that has pervaded 4E cognitive science. However, can we overcome that bias while retaining a commitment to the importance of phenomenological descriptions for 4E cognitive science? Perhaps we can, but probably not if we continue to rely on classical Western phenomenology. Certain strands of Buddhist thought might be more compatible with sympoiesis.

Handling Editor • Alexander Riegler

« 1 » Mads Dengsø and Michael Kirchhoff claim that 4E cognitive science has inherited an individualistic conception of cognitive agency. This, they argue, is in tension with a core commitment of 4E cognitive science: to ground cognition in biology. The problem, as they see it, is that recent work in developmental systems theory undermines the very idea that organisms are individuals – at least in the demanding metaphysical sense that unifies such disparate thinkers as Aristotle, Descartes, and Kant. What is needed, they conclude, is a new conception of cognitive agency that takes seriously the thought that there is no unambiguous demarcation between when an organism counts as an individual and when it counts as a community. We are, all of us, communities embedded in communities: embedded in supra-organismal communities that constitute our cognitive processes (societies, cultures, and ecosystems) as well as constituted by sub-organismal communities (bacterial members of our internal milieu, and of course the ancient collaboration between bacteria and archaea that is the basis of every eukaryotic cell on the planet).

« 2 » I would like to count myself a supporter of their effort to make 4E cognition more biological and more ecological, and that does require reckoning with the individualistic bias in the roots of 4E cognition. However, I will also suggest that their commitment to making cognition more deeply grounded in biology is in tension with another core commitment of 4E cognition, which is to bridge the gulf between cognitive science and phenomenology. This, in turn, raises the question as to whether the founding commitment of 4E cognitive science, which was to ground cognition more deeply in *both* biology *and* phenomenology, is ultimately coherent.

« 3 » I agree with Dengsø and Kirchhoff when they note that there are differing and to some extent competing theoretical orientations under the umbrella of "4E cognitive science." Rather than attempt to sort through them, I want to think through the turn from autopoiesis to sympoiesis from the perspective of what Miguel Sepúlveda-Pedro (2023) calls "strong enactivism." The crux of his account relies on two principles: the principle of biological autonomy and the principle of sense-making as ecological norms. The first principle says that each and every biological organism is a self-determining and self-constraining complex dynamical system. The second principle says that biologically autonomous agents enact a regime of ecological norms that coordinate their activity with the larger systems in which they are embedded, and that such ecological norms are the system's enactment of sense-making.

« 4 » The importance of strong enactivism lies in the depth of its commitment to the two foundational meta-theoretical commitments of 4E cognitive science: to ground cognition more deeply in both organism-centered biology and phenomenology. However, on the approach taken by Dengsø and Kirchhoff, these metatheoretical commitments may very well be in tension with each other.

« 5 » One of the many intriguing points raised by Dengsø and Kirchhoff is that *from a biological point of view*, there is at best a merely notional distinction between an individual and a community. Every biological organism exists in relation with others – even bacteria do not exist in social isolation.[1] Unicellular eukaryotes exhibit the traces of ancient endosymbiosis, and bilateral metazoans frequently (perhaps always?) are host to bacterial ecosystems as well as interdependent with many kinds of social and physical environments. Firstly, the fundamental unit of biological explanation is not the organism but the organism–environment relationship. Secondly, this relationship can be found at every level of biological organization: not only are we, as organisms, the kinds of organisms that we are because of the phylogenetic and ontogenetic environments that have shaped our histories. Indeed, the same applies to the microbial ecosystems that live inside of us, each cell in our bodies in its relations with other cells, the organelles that bear traces of their bacterial ancestors. Every level of biological organization is the layer of an onion or a Matryoshka doll.[2]

« 6 » However, in light of this account of the underlying biology, why does cognitive science remain fixed on individual cognition? And more specifically, why is 4E cognitive science committed to individualism? The basis of individualism in cognitive science, like individualism in modern Western thought generally, is vastly complicated and cannot be entered into here. Yet we can broach the question as to why 4E cognitive science is committed to individualism: it is *due to* the commitment to the phenomenological method itself.

« 7 » I say this because phenomenological reflection, in the classical Western version, is the disclosure of what appears in the subjective consciousness of the phenomenologist. The *epoché*, or bracketing of the natural attitude and the naturalistic attitude, is an activity of the phenomenologist that she carries out in order to describe the essences or meanings in the immanence of conscious experience. This is necessarily an activity of the specific individual who is enacting the suspension and describing what appears in consciousness while the natural and naturalistic attitudes are suspended. This is why, I contend, phenomenology as philosophical method was so closely allied with existentialism as philosophical-political orientation: it is because no one else can describe my consciousness exactly as I can describe it, that no one else could ever be in the right epistemic situation necessary to choose for me, and that is why each of us must choose for ourselves, even while recognizing that every choice has consequences, intended and unintended, for ourselves and for others.

« 8 » If, however, it is phenomenology itself that is inextricably individualistic, then the urge to make cognitive science less individualistic (in order to make it more biologically plausible) must take 4E cognitive science further away from phenomenology. To some 4E cognitive scientists, this may be welcome news; however, I suspect that to most 4E cognitive scientists and philosophers, it will not be.

« 9 » This criticism, it should be noted, relies upon the assumption that phenomenology is necessarily individualistic, and this assumption is by no means unassailable. I am not clear on whether the phenomenology of intersubjectivity or "intercorporeality" (Marratto 2012) is sufficient to show that phenomenology is compatible with the biology of massively distributed cognitive agency, but *prima facie* there does seem to be a space for an argument along those lines.

« 10 » However, I think it would be more intriguing and more fruitful for future research to consider the turn from autopoiesis to sympoiesis as inviting deeper engagement with a strand of phenomenological reflection *other than* that of the classical Western tradition, namely important figures in Buddhism, including not only Nagarjuna but also (for example) Dharmakirti or Candrakirti. What appeals in these philosophers is the phenomenological demonstration of the non-existence of self. The self, which is

1| This raises the question as to why it is the solitary bacterium in search of sugar that became the foundational model for enactive cognition (Varela 1997: 78f; Thompson 2007: 157–159) rather than groups of bacteria engaged in cell-to-cell signaling. Perhaps this is yet one more respect in which strong enactivism retains the individualistic heritage that Dengsø and Kirchhoff urge we must overcome.

2| This raises the question as to whether there must be a lowest-possible layer or level in order for the system to be *biological* at all, and if so, if autopoiesis or biological autonomy is the best way of conceptualizing the lowest level of biological organization – or is it sympoiesis all the way "down," as well as all the way "up"?

what seems to be central to classical Western phenomenology, cannot exist and only seems to exist because of a distortion in what is taken to be phenomenologically disclosed. Perhaps deeper engagement with this kind of phenomenology would allow strong enactivism to take the turn from autopoiesis to sympoiesis without abandoning the foundational commitment to phenomenology, which is no less central than the foundational commitment to grounding cognition more deeply in biology.

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"Cartesian" Relational Cognition and Organism-Centered Cognitive Agency

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> Abstract • I examine the authors' concept of relational cognition, showing that it has two possible readings, both more "cartesian" than the authors suppose. Whence the authors' "anti-cartesianism," then? I suggest it is due to an understanding of cognition that allows cognition to operate at very long timescales, and provide an argument to resist such an understanding.

Handling Editor • Alexander Riegler

« 1 » As I read them, Julian Dengsø and Michael David Kirchhoff aim to advance the 4E campaign against a cognitivist, broadly speaking "cartesian," view of the mind. In their view, whilst the 4E movement correctly adopted a relational view of cognition, it is still hostage to a monadic, non-relational and "cartesian" view of cognitive agents. 4E accounts still cast cognitive agency as organism- or even brain-bound. To shed this residual cartesianism, Dengsø and Kirchhoff suggest bringing the 4E movement into contact with modern biology and developmental systems theory, to capitalize on the *relational* view of organisms they offer.

« 2 » I wish to problematize the relevant concept of "relational cognition" Dengsø and Kirchhoff deploy. I will show that it has two possible readings, both far more *cartesian* than the authors are seemingly aware of. I also wish to sketch an explanation as to why Dengsø and Kirchhoff take such an issue with a "cartesian," organism-bound picture of cognitive agency.

« 3 » To begin with, it should be noted that Dengsø and Kirchhoff operate with a *single* notion of relational cognition. For example, in §§1, 2, 5, 6 and 20 they claim that 4E approaches *in general* are committed to a relational view of cognition. This suggests that all 4E approaches are committed to *the same* relational view of cognition. Their Table 1 shows the degree to which various 4E approaches are committed to a relational understanding of cognition. Again, it can be argued that the table illustrates the degree to which various approaches are committed to a single view of relationality.

« 4 » This *single* notion of relational cognition strikes me as highly problematic, in particular because Dengsø and Kirchhoff focus on extended *and* enactive approaches to cognition. However, these approaches are quite different and in certain respects profoundly *inimical* to each other – especially when it comes to their stance regarding computationalism (Rowlands 2009; Wheeler 2010; Gallagher 2017). The *extended* approach is born out of analytic philosophy of mind, and can be considered an embodied offspring of classical computationalism (Wilson 1994). The *enactive* approach, on the other hand, is a phenomenology-inspired *alternative* to computationalism. We can therefore expect that these approaches take cognition to be relational in quite different senses – and none of them is as deeply inimical to "cartesianism" as Dengsø and Kirchhoff seem to depict them. Let me discuss them in more detail.

« 5 » In its standard incarnations ("first-" and "second-wave"), in the extended approach to cognition, cognition is "relational" in a purely *spatial* sense. According to this account, cognitive systems can (at least at times) be materially constituted by extra-cerebral components, such as active bodily parts or extra-bodily props (Clark 2008, see also target article, §§8–10). In this view, extra-cerebral components are literal *physical bits and pieces* of the machinery of our thought. On this reading of "relationality," then, cognition is relational only because the cognizing machinery is spatially spread outside the agent's brain.

« 6 » Such a purely spatial sense of relationality, however, is entirely compatible with a "cartesian," profoundly cognitivist view of the mind. Imagine a clerk, whose job consists of keeping track of the finances of various branches of a company. She is notified by the relevant expenses and earnings via mail, then uses pen and paper to compute the current financial status of the branches, and finally, at the end of the workday, sends a mail to the various branches informing them of their financial status. On the assumption that using pen and paper to solve a complex mathematical operation is