

## Enacting Productive Dialogue: Addressing the Challenge that Non-Human Cognition Poses to Collaborations Between Enactivism and Heideggerian Phenomenology

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The discourse generated by interactions between phenomenological and scientific perspectives is characterised by a particularly rich exchange between the specific and the general, the foundational and the applicative. That is, discussions about the insights produced by particular collaborations often feed into and enrich (rather than only occurring in succession to) debates over fundamental questions about the very possibility of any genuine cooperation between these discourses. The dialogue between phenomenology and the sciences seems to recognise almost more than any other that the conditions of its existence in general can come into view much more clearly in light of the challenges and benefits that arise in the context of specific negotiations.

The present chapter seeks to take advantage of this dynamic. It will examine how one particular proposal for interdisciplinary collaboration deals with conflict between the perspectives that it asks to cooperate, in the hope of shedding some light on the kinds of negotiations that make for fruitful dialogue between the phenomenological tradition and the natural sciences more generally. The proposal in question—a call for sustained cooperation between Heideggerian phenomenology and the enactivist approach to cognitive science—is one that I have set out and defended in detail elsewhere;

hence, for the purposes of this chapter, I shall proceed as if such a partnership is both desirable and possible (at least in principle).<sup>1</sup> While I will offer a very brief outline of the intersections between Heideggerian and enactivist perspectives that motivate these claims, I want to look at some of the challenges and opportunities that arise once this project is already underway and its interlocutors think that there is something in it that makes further negotiation a better option than simply abandoning the venture. The specific site of conflict that I shall focus on here is generated by the differences in scope between Heideggerian and enactivist analyses. That is, the parts of Heidegger's account that I want to bring into contact with enactivism analyse the structures of one particular entity—Dasein—while enactivism investigates features belonging to a very broad range of systems, which might lead one to question whether these perspectives have much of interest to say to one another. It is my contention that they do. While I cannot comprehensively address this problem in such a short piece, I shall here put forward one kind of approach that I think may work if developed further. I will suggest, moreover, that this proposed solution not only benefits the Heideggerian enactivist collaboration but also offers resources that can enrich how each individual discourse responds to significant debates arising within its native context. In doing so, I hope to illustrate some of the conditions that facilitate productive, rather than competitive, negotiations between phenomenological and scientific frameworks.

#### PREAMBLE: INTERSECTIONS BETWEEN HEIDEGGERIAN AND ENACTIVIST PERSPECTIVES

The collaborative project I am referring to here is one that brings together Heidegger's early analyses of Dasein's purposive and intrinsically temporal Being-in-the-world with the model of cognition that developed out of Varela and Maturana's theory of autopoiesis.<sup>2</sup> Before exploring how it might negotiate one potential conflict, I want to summarise why I think this partnership is an inviting prospect in the first place. To this end, I will run through some of the main claims that I have made in previous work, focussing on what I take to be three significant points of intersection between the discourses; constraints of space mean that I can only sketch each link very roughly here.

One anchor mooring my claim that we ought to set up a more sustained dialogue between Heideggerian and enactivist thought lies in the

history that they have already shared. The ancestors of each discourse, so to speak, had significant contact with one another—a fact that has been studied in various other fields, yet rarely been brought to bear upon contemporary exchanges between enactivism and the phenomenological tradition. A prime example of this lies in the Heideggerian connections to the work of enactivism's philosophical forefathers, Hans Jonas and Jakob von Uexküll.<sup>3</sup> Jonas was, of course, a student of Heidegger's. More than this, he also famously engaged in an extensive critique of Heideggerian thought, one that revealed the close connections as well as tensions between their approaches—as well as a resonant repudiation of Heidegger's actions. Meanwhile, while we know less about what von Uexküll might have thought of Heidegger's ideas, we do know what the latter thought of the former. In *The Fundamental Concepts of Metaphysics*, Heidegger described von Uexküll's work as one of the most important advances towards bringing biology and phenomenology closer together.<sup>4</sup> He went so far as to suggest that von Uexküll's work invited a phenomenologically driven 'radical interpretation' that would enable it to realise its 'fundamental significance', and affirmed that 'the engagement with concrete investigations like [von Uexküll's] is one of the most fruitful things that philosophy can learn from contemporary biology' (Heidegger 1995, 263/383).

Beyond these historical connections, I also suggest that there are notable resonances between the content of Heideggerian and enactivist approaches. One of these lies in the way that each perspective describes the relationship between the entity at the centre of its narrative and the world that this entity negotiates. More specifically, it is my contention that the analysis of Dasein that Heidegger presents in *Being and Time* and the type of enactivism that focusses upon autopoiesis both strike a delicate balance between (a) emphasising the co-constitution of entity and world and (b) retaining a view of the entity as a centre of concern. Claim (a) refers to the insistence, present in both discourses, that entity and world are intertwined and co-constituting, shaping and defining one another so that neither can be understood as what they are—or even be what they are in the first place—in abstraction from the other. For enactivism, cogniser and world define one another; the former needs the latter, not only to produce the conditions for its existence and survival but also to be the context against which it defines itself as a self-generating unity.<sup>5</sup> The latter, meanwhile, is only intelligible as a *world* as well as an environment

because it is being navigated by an organism with needs and capacities that is capable of the relational meaning-generating process that is cognition.<sup>6</sup> This picture is, I think, deeply compatible with the way that Heidegger sets out the interdependence of Dasein—which, after all, *is* Being-in-the-world, ‘is its world’ (Heidegger 2009, 416/364)—and the world whose very worldhood is constituted by relations of purposive significance generated by Dasein’s concerns, ends and projects. The second component being held in equilibrium, claim (b), is based upon both Heideggerian and enactivist perspectives maintaining a role for an entity, something whose concerns orient the meaning of its world, in their frameworks. For both discourses, there is a centre—not a self, an ego, a *res cogitans*, but a fundamentally world-situated locus of some kind—from which meaning-generation proceeds, one that relates to its world and participates in its world’s being without being dissolved into it. Autopoietic, adaptive cognition by definition involves the self-maintenance and reproduction of a unity, permeable though its border is. Meanwhile, it is Dasein’s striving for-the-sake-of-itself that orients worldhood; there is an ineluctable nexus, a perspective that is not eliminated or irretrievably dispersed even in the face of its ontological entanglement with its world. Both enactivism and early Heideggerian thought assert the inseparability of entity and world and reject traditional subject/world oppositions, yet neither takes this to necessitate surrendering the notion that there is a locus or core of concern to which the world is significant.

The other main conceptual sympathy between Heidegger’s early thought and contemporary enactivism that I want to touch upon here is generated by the temporal structures operating in both accounts. Proceeding from an extensive Heideggerian exegesis that I cannot reproduce here, I have elsewhere defended a reading that ascribes three key attributes to the model of temporality which Heidegger sets out in *Being and Time*. These identifying features—which can be summarised under the headings of purposiveness, self-concern and futurity—can, I have argued, also be traced out in the process of cognition as enactivism describes it. I suggest that this connection has the potential to generate significant insights and benefits for both participants in the collaboration, a few of which I will mention in the next section; before I proceed, though, let me briefly explain what these shared temporal features are.

Firstly, I read the account of *Being and Time* as suggesting that temporality and purposiveness are entwined in an inseparable, mutually shaping

reciprocity, such that neither can be fully understood without taking into account the role of the other. I should note that this is a somewhat controversial claim, for the standard interpretation takes Heidegger to insist upon a unidirectional relation (in which temporality founds purposiveness). I contend, however, that there are significant textual and philosophical motivations for adopting a more complex, nuanced view. Returning to the features of Heideggerian temporality, the second attribute that I ascribe to it is an intrinsic connection to the self-concern of the temporal entity, as manifested in the temporal structuration of Dasein's concern for its own Being and striving for-the-sake-of-itself (both of which in turn also permeate and structure Dasein's lived temporality). Finally, I take the temporality of *Being and Time* to be weighted towards an indeterminate futurity, according a special significance to a radically open-ended directness towards possibility as such.

As I explain elsewhere in more detail, I think that each of these dimensions of Heideggerian temporality can be recognised within the structures of meaning-enacting cognition. Autopoietic, adaptive cognition also evinces temporal purposiveness and purposive temporality. The enacting system's self-perpetuating striving is only intelligible through integration into a temporal continuum that meaningfully links past and present states with future possibilities, even as past, present and future are encountered in terms of the connections between problems, means and ends. This enacting cogniser's temporality is structured by the concern that defines it as a self-generating unity directed towards and by its own survival, a concern that is itself cashed out as the carrying over of the past entity towards further possibilities. Yet the cognising is also defined by its reaching towards an aim—its own continuation—that can never definitely arrive or be fully anticipated. Since self-maintenance requires the precariousness of a continued resistance, the possibility of the system's dissolution, final stability, only comes with annihilation. The end of self-perpetuation never arrives, for the struggle towards it can only end with death.

There is, of course, much more to be said about the details of this collaboration, particularly about the extent and consequences of the continuities that I have posited. This brings me to the next section, and the heart of this chapter, for the specific site of tension that I will examine is also a prime starting point for fleshing out some of the points that I raise above.

## A PROBLEM FOR HEIDEGGERIAN ENACTIVISM: DASEIN AND OTHER AUTOPOIETIC COGNISERS?

The challenge to Heideggerian enactivism that I have in mind here arises when we consider the kinds of entities to which each perspective tends to apply its analyses. The aspects of Heidegger's account that come into play in the collaborative venture outlined above are all taken to be structures specific to Dasein. Enactivism, meanwhile, attributes meaning-enacting cognition to a vast range of systems. While there is some debate about how simple a system can be while still classifying as at least minimally cognising (and about just where any of these lines should be drawn), it is relatively uncontroversial to say that the class of enacting cognisers would embrace far more entities than just those which could be called Dasein. This difference creates a significant problem for collaboration between Heideggerian and enactivist perspectives. On the one hand, it would seem that a discourse which affirms the continuity between simple and complex cognisers would either lie in tension with or be (at best) indifferent to a phenomenology that focusses only upon one kind of entity. On the other, it also appears to be difficult to reconcile a Heideggerian perspective with the extension of the structures he posits in his account to other kinds of entities. Dasein, the Heideggerian might worry, has a special role for a reason, and it is unlikely that this could be preserved by a more ecumenical reinterpretation of its analyses.

Considering this issue from either a Heideggerian or an enactivist approach may well lead one to simply give up on their cooperation, or at least limit it only to those cases when enactivism might be particularly interested in one kind of cognition alone (and prepared to draw a hard and fast line between this cogniser and other entities). One reason why one might not want to do so immediately, at least if one sees any value in the insights that Heideggerian phenomenology can contribute to dialogues with the cognitive or other sciences, is that the problem outlined above—the seemingly restricted scope within which Heideggerian analyses can be applied—may undermine more and more of these exchanges. While disbanding the partnership is always an option, I think it is worth seeing if there is a way that we could have at least most of our Heideggerian cake and eat it, too.

### *Towards a Solution: Extending the Structures of Dasein*

One approach that suggests itself here is to contend that Dasein may not necessarily be confined to humans alone. While the narrative of *Being and*

*Time* strongly suggests that Dasein belongs primarily to humans, the most explicit and direct statement we get from Heidegger in that text is the claim that Dasein is the ‘entity which each of us is himself’ (Heidegger 2009, 27/7). However, he also maintains that ‘Dasein’ is not a synonym for, nor equivalent to, ‘human’ or ‘human being’ (ibid. 71/45–75/50). So, it might be possible to conceive of the Dasein of *Being and Time* at least as a set of particular characteristics, with any entity that can meet the criteria qualifying as Dasein; even if (and this is a genuinely open ‘if’) humans have so far been the only ones to do so, there is no need to insist that this will continue to be the case.<sup>7</sup> While I think that this way of reconceptualising Dasein has merit, it also strikes me that it does not get us far enough; the connection between Dasein and entities that do not qualify as Dasein needs to be made more explicit. One way of moving further along this path, and the kind of response that I shall advocate here, is to argue for the extension of Dasein’s fundamental structures, not just beyond humans, but beyond Dasein itself, such that other kinds of entities participate in some of these characteristics without having to be ‘full-blown’ Dasein. I think it is indeed possible to conceive of some of Dasein’s structures being shared by other entities (particularly those which we would today classify as cognisers) and, moreover, to do without thereby completely dissolving the special position allocated to Dasein, because it remains possible to think of Dasein itself as something like the fullest instantiation of all of the structures Heidegger analyses. In my view, the purposive, self-concerned and future-weighted model of temporality that I ascribe to Heidegger presents itself as the kind of structure that facilitates such a perspective. If we deem it possible that versions of these basic structures are shared by all enactive cognisers, then the complexity of the way in which they shape, and manifest in, the striving of such organisms could form the basis for a spectrum of temporal complexity, one that we could use to compare and relate different kinds of entities.

Adopting such a position could ease further collaboration between Heideggerian and enactivist discourses. However, as it stands, this may also appear to be a one-sided adjustment to the former on behalf of the latter in what is after all meant to be a dialogue. If the Heideggerian perspective is to be modified along the lines that I have suggested, then we might well ask what influence it can in turn have upon its interlocutor. Before I proceed to set out the details of the ‘spectrum reading’, then, I want to draw out what I think this take on Dasein could offer enactivist approaches.

*Heideggerian Enactivism and the Problem of the ‘Cognitive Gap’*

One enactivist debate to which I think that my reconceptualisation of Dasein’s structures might contribute is that dealing with what is often referred to as the problem of the ‘cognitive gap’, that is, of accounting for the distinctions between various cognisers while remaining within a framework that emphasises their continuity.

Autopoiesis and autonomy were originally conceived by Varela and Maturana as features exclusive to the metabolism of single cells, or of very simple organisms at the most; both initially resisted the application of these terms to any domains of inquiry outside of biology.<sup>8</sup> While contemporary enactivism applies these concepts to the definition of cognition in general, most of its practitioners maintain a strong emphasis upon autopoiesis establishing a continuity between very simple and complex organisms.<sup>9</sup> For enactivists, even single-celled organisms display autopoiesis, which they take to be a necessary condition for something to be a living entity; that a basic feature of cognition is part of the very definition of life itself underlies the ‘life-mind continuity thesis’ prominent in enactivist literature.<sup>10</sup> This approach faces the challenge of accounting for and organising the differences between the kinds of organisms that it classifies as cognisers. For example, if they are both autopoietic, then how can one conceptualise the distinctions between single-celled organisms and humans in enactivist terms? The concern here, in the words of Andy Clark, ‘is that by stressing unity and similarity we may lose sight of what is different and distinctive’ (Clark 2001, 118–119).

The salience of the problem of the cognitive gap to the enactivist approach has motivated a number of responses within the discourse, most of which focus upon delineating some additional factor or mechanism to explain the varying complexity of cognisers and situate the highly advanced capabilities of humans.<sup>11</sup> In their paper about the problematic, Froese and Di Paolo show that such attempts at finding an additional category for classifying cognisers need to meet two constraints. Firstly, such a factor cannot be so specific to humans that it completely undermines the continuity between human cognition and other autopoietic systems (Froese and Di Paolo 2009, 442). Secondly, simply positing what they call ‘more of the same’ will not suffice as an answer that can satisfactorily capture the distinctiveness of complex cognition; the difference needs to be defined qualitatively, rather than quantitatively (such that a human does not just have more of quality  $x$  than a bacteria) (ibid. 441).

I want to suggest that the conception of Heideggerian temporality that I have advanced here and elsewhere can provide enactivism with an additional way of responding to the problem of the cognitive gap by offering a classificatory schema for the complexity of cognisers. That is, I think that the ways in which the structures of Heideggerian temporality (captured in the three features I emphasised earlier) (a) resonate in meaning-enacting cognition and (b) can be extended beyond Dasein and taken to constitute a spectrum of temporal complexity along which we can locate both Dasein and non-Dasein entities enable us to (c) also take that spectrum to be one of cognitive complexity, such that we can describe and compare varying levels of cognitive complexity in temporal terms.<sup>12</sup> To see how this might work, however, more detail about the nature of this spectrum is needed—a matter to which I shall now finally turn.

### *A Heideggerian Schema of Temporal and Cognitive Complexity*

At one end of the range, we would find the simple cognisers whose temporal self-concern manifests in the drive to maintain themselves across time, whose relation to futurity is a basic striving outwards and a responsiveness to possibilities shaped by their capacities and ends, whose temporal purposiveness and purposive temporality manifest in primal, adaptively regulated, past-present-future-concerns-means-ends patterns. Moving along the spectrum in the direction of increasing complexity, we would see each of these structures framing and operating in expanding scopes and levels of detail that mark both quantitative and qualitative shifts. The temporal field within which cognisers operate widens. While this broadening can relate to quantitatively longer lifespans (although this does not always correlate to cognitive complexity, as witnessed by the many organisms that outlive humans), it refers primarily to the length and qualitative richness of the projects a cogniser can take up. Increasingly, temporally complex cognisers can strive towards possibilities that can become more distant, with a growing capacity to transcend or balance immediate needs with an eye to ends that may be not only further away but encompass an enriched relation of past to future, as the former affects the cogniser in different and ever more intricate ways, shaping what it is that is to be continued into the future and also what that future means to the cogniser. Projects come to be more entwined with one another, with the past–present–future of basic tasks integrating into a broader timeline ever more delicately and explicitly. The level of detail and the explicitness of a cogniser's participation in

temporality both increase and change in kind. The temporality of a complex cogniser's meaning enaction can itself become part of the meaning that is enacted. The way in which the past is carried over and the range of futures towards which a cogniser may strive become more significant and less interchangeable. Cutting off certain possibilities may attain a meaning of its own and even lead to regret; the manner in which the implicit and explicit influence of the past is taken up, and the tone in which projection is carried out, come to matter in themselves. The cogniser can develop a set of temporalised priorities that are defined by particular relations between history and projection, such that various ends which might otherwise lead to the same end come to be differentiated and preferred according to their effect upon, and relation to, self-concern's meaningful stretching towards futurity. These ends themselves, meanwhile, can grow to be simultaneously more vague (with open-ended notions of satisfaction affecting the meaning of immediate, concrete tasks) and yet more detailed (through the greater potential for intricate connections between consequences and possibilities; the multiplication of the ways in which past, present and future can interact; and the diversification of the kinds of meaning that tasks, goals and futures can have for the cogniser). Here, futurity becomes increasingly indeterminate as well as more constrained (as the temporal meaning a cogniser wants to manifest divides the paths it needs or wants to take from the ones that it can pursue) and threatening (for more is at stake, and that which is at stake is understood as such).

At Dasein's end of the scale, we see a capacity to relate to its entire life as one long project, with a striving towards possibilities that may be decades away (or even longer, if an individual has grander ambitions) and an ability to relate immediate activities to an extended narrative through which Dasein may try to give its past and futures a distinct kind of meaning. The valence of the past *as past* takes in not only personal but also communal and even cultural historicity; it shapes, enriches and constrains futurity in dynamic, interconnected ways that give Dasein a singular understanding of what is at stake. It can make sense of its preferences of some futures and histories over others in terms that shape how it participates in and enacts them. Its future-directed precariousness develops into a Being-towards-death that radically alters the meanings it generates and structures the way it relates to its self-generating identity.<sup>13</sup> Dasein's purposive temporality and temporal purposiveness structure the most complex kinds of practice, enabling it to participate in sophisticated linguistic, cultural, historical, social and scientific contexts. Its temporalised self-concern reaches its

apotheosis in Dasein's capacity for ontological inquiry, its understanding of its Being and the Being of other entities, of Being itself.

This means that an understanding of the temporality of other cognisers, too, can become part of the world of significance that Dasein navigates. As their participation in temporality becomes more complex, cognisers can shape and respond to one another's temporality in ever richer ways, encountering others as entities with a self-concerned future-directedness. Cogniser A might encounter cogniser B as a competitor whose behaviour (shaped by its concern for self-perpetuation and its striving to bring its past into its future) constrains the possibilities A might encounter, and whose own possibilities A can affect. Cogniser C might encounter D as prey meeting a predator; D's self-perpetuating may come at the cost of C's future and self-concern, influencing the way in which C experiences precariousness, while C's evasive manoeuvres—its striving towards possibilities that maintain its identity most effectively—constrain the possibilities towards which D can strive, the meaning that it navigates and responds to. Several cognisers might encounter one another as collaborators, capable of participating in a shared project and manifesting a communal history, whose interactions enrich and complicate the possibilities towards which each may strive. Higher-level cognisers (such as Dasein) would have the capacity to understand what is at stake in each of these encounters explicitly, and to do so in temporal terms; such a cogniser can recognise another cogniser's future as a future that matters to it because of its self-concern; it can see another's past as that which must be related to in a particular way for that cogniser to remain itself. A cogniser like Dasein can relate its own temporal participation to that of cognisers both like and unlike itself, and can understand how it shapes them even as they shape it explicitly, with its temporality mattering to it in a way that is itself entwined with the temporal structuration of its self-concern.

In this way, Heideggerian temporality provides a spectrum or 'factor' for classifying cognitive complexity that establishes a radical continuity through the shared participation in temporal structures across the entire range of cognisers without slipping into a schema that only posits 'more of the same'. Dasein is not just 'more self-concerned' or 'more futural' or 'more purposive' than more basic cognisers; each of these temporal (and temporality-shaping) features is also qualitatively different. There is a significant distinction between, for example, basic temporalised self-concern and Dasein's capacity for ontology; nonetheless, both participate in, and are shaped and enabled by, the same temporal structuration.

I would also suggest—though I cannot set this out in detail here—that this spectrum of temporal complexity integrates particularly well with one of the most significant contemporary enactivist responses to the problem of the cognitive gap, namely, the sociality-based account put forward by Froese and Di Paolo (drawing upon their previous work with De Jaegher). This approach argues that even basic cognisers can radically expand the meanings generated by the navigation of their worlds simply through contact with other such entities, an effect that is then progressively amplified by the sophistication of interactions and the different possibilities for communication. The ‘difference between the sense-making capabilities of a simple single-cell organism and that of a fully developed human agent’ can then, for Froese and Di Paolo, be largely attributed to the increased range of options and meanings available through more complex forms of intersubjectivity. It seems to me that this view invites an exploration of the temporal dimension of sociality, and that such a development could enrich the current discourse.<sup>14</sup> I would even suggest that sociality and temporality are linked in a way that means the latter is crucial to explaining how the former operates. Recall, for example, Cogniser A and Cogniser B, who compete for resources. It seems to me that in order to view them as socially linked systems, rather than just cognisers who exist alongside each other without affecting one another’s enaction and navigation of meaning, we need to be able to say that they can shape one another’s futures and that, if they do so *over time*, they have a shared past. Cogniser B’s behaviour may change if Cogniser A does something, but to render that intelligible as an example of sociality, this change needs to be appreciated in temporal terms as Cogniser A constraining the future possibilities of Cogniser B. They have a relationship to each other in virtue of their temporal self-concern, of their respective needs to continue their pasts into their respective futures impacting upon one another, whether through direct or indirect contact. The increasing complexity of these relations—in communal and cultural terms—itself moves along a temporal axis, as each level of social complexity is marked by a distinct relation to historicity, to the meaning that a shared past can have, and to the ways this can both generate and curtail possibilities and projects.

### *Friction, Negotiation, Dialogue*

While the proposal detailed here may ease the conditions for collaboration between the discourses, it may seem like an overly radical departure from

the Heideggerian account upon which it is founded. However, I would suggest that, with further work, it can preserve enough of the special place that Heidegger's account assigns to Dasein whilst leaving itself open to changing insights about the nature of the distinction between humans and non-humans. There are significant qualitative differences between Dasein's temporal structuration and the manifestation of temporal structures in simpler cognisers giving Dasein a special place in the spectrum of cognition. This may not be sufficient for the concerned Heideggerian, but I think that the question of whether we gain or lose more by extending the scope of the analysis of Dasein in this way at the very least remains an open one. Compare the theory of autopoiesis; that its original restrictions of scope could neither contain the insights it generated nor hold back the flood of varied and novel applications enriched, rather than undermined, the discourse. While the stakes are different in the Heideggerian case, the outcome need not be; it is not unfathomable to consider that the early Heidegger was right about at least some of the structures that constitute Dasein, but not about the range of entities to which they could be gainfully applied.<sup>15</sup>

This is not to say, however, that approximating Heidegger's views about the non-human/human distinction (whatever we may take them to be) as closely as possible should be the ultimate goal here; I am not suggesting an enactivist apologetics that can make room for all aspects of Heidegger's account. Rather, I think that, where there are significant tensions between Heideggerian and enactivist perspectives on this matter, the latter gives us reason to challenge, interrogate and revise the former. Here, we find ourselves at a point where the notion of phenomenology and cognitive science informing one another can become both radical and concrete. I am not suggesting that we reject Heidegger's claims about the exclusivity of Dasein purely because a type of cognitive science contends that we need to; I do not believe that this is how the dialogue between the disciplines should proceed. The challenge to Heidegger's exclusivism with respect to the structures of Dasein comes from both within and beyond the Heideggerian perspective. On the one hand, it is the applicability and profound resonance of the structures that Heidegger's account posits which itself demands their extension beyond Dasein. On the other hand, the problem of the cognitive gap is a salient example of the way in which Heideggerian phenomenology and contemporary cognitive science can enrich one another through the challenges they pose to each other. Although I have suggested that we should question it, Heidegger's insistence that the structures he describes

are unique to Dasein nonetheless provides a new perspective from which to take the problem of the cognitive gap seriously, offering us further reasons why a model of cognition such as enactivism needs to respond to the challenge of incorporating the qualitative differences between basic organisms and higher-order cognisers (which I think it can, as I have shown). Conversely, the very possibility that Heideggerian temporality does offer us a way of responding to that challenge on behalf of enactivism precisely because it constitutes a schema of both continuity and distinction between simpler cognisers and Dasein gives us grounds on which to reinterpret and question Heidegger's own seeming exclusivism. Enactivism offers us motivation for extending Heidegger's account beyond the bounds that it stipulates for itself because it shows how the concepts articulated within that account apply in ways that the latter did not originally posit. I think that this enhances, rather than violates, Heidegger's framework (although I concede that exegetical violence may be necessary sometimes), for the wide applicability of its concepts is surely a point in favour of their usefulness and continued salience; new uses for Heideggerian concepts suggest that they can still generate new insights. A Heideggerian model of temporality, then, intersects with enactive models of cognition in a way that expands the latter's possible responses to the problem of the cognitive gap, while at the same time providing impetus for a re-evaluation of some aspects of Heidegger's own account, illustrating how a dialogue between these fields can work towards productive friction.

### CONCLUDING REMARKS

This chapter briefly summarised the case for a collaboration between early Heideggerian phenomenology and enactivist cognitive science, before considering how such a venture might reconcile significant differences in the way that each discourse applies the structures it discusses. There is, of course, much more work to be done; my discussion here provides only a very rough sketch of a much broader project, one that deals with many sources of tension beyond the one that I have begun addressing here. Nonetheless, I hope to have suggested why the integration of Heideggerian and enactivist perspectives is worth pursuing further, and that it has the potential resources for approaching conflicts between these interlocutors in a productive, rather than destructive, manner.

## NOTES

1. This previous work can be found in Stendera (2015) and my doctoral dissertation, 'Dasein's Temporal Enaction: Heideggerian Temporality in Dialogue with Contemporary Cognitive Science' (PhD diss., The University of Melbourne 2015). I should note here that (a) Section 1 of this paper summarises, but does not exactly reproduce, many of the aforementioned paper's main arguments; and that (b) the rest of this chapter is derived from (previously unpublished) parts of Chap. 8 of my dissertation.
2. The following discussion applies to that part of enactivist discourse (exemplified by the work of e.g. Ezequiel Di Paolo and Evan Thompson) which focuses on autopoietic, adaptive cognition. I am not referring to the recent Radically Enactive Cognition movement, nor to the perception-focused work of Noë (to which Thompson has also contributed).
3. For a further analysis of enactivism's philosophical roots, see Froese and Ziemke (2009), Thompson (2007) and Weber and Varela (2002).
4. Heidegger's praise here is tempered by his rejection of von Uexküll's insistence upon the continuity between humans and other animals, a point that foreshadows the problematic I discuss later in the chapter.
5. My discussion of enactivism here and throughout this chapter draws primarily on key accounts such as: Di Paolo (2006), Froese and Ziemke (2009), Thompson (2007), Varela (1997) and Varela et al. (1991).
6. This raises the question of whether these resonances extend to the most basic systems that enactivism investigates. It is worth noting that there is much debate within enactivism about how to cash out the life–mind continuity and how to view the kind of enrichment that renders life cognitive, meaning that the framework for asking this is not yet settled enough to determine an answer either way. 'How far down' we can find purposive, concerned and future-weighted temporality is arguably an empirical issue which calls for further investigation.
7. This position is harder to reconcile with works like the *Letter on Humanism* and *The Fundamental Concepts of Metaphysics*, but a comparative analysis of these with *BT* is beyond the scope of this chapter. I think one could read Heidegger's distinctions between lacking a world, being poor in world and Being-in-the-world as reflecting something like the spectrum of complexity I propose later, something I try to do elsewhere. Here, however, I am more interested in recovering the insights that can be generated if we modify the framework of *Being and Time* a little than in retaining every part of its analyses.
8. Varela explains his original stance and the development of his work towards cognitive science in Varela (2011).

9. See Froese and Ziemke's history of this development in 'Enactive Artificial Intelligence', 476–484.
10. See, for example, Thompson's account in *Mind and Life*, and Di Paolo's work in 'Autopoiesis', 429–452ff. The term is used throughout the literature.
11. Froese and Di Paolo (2009), 441–442.
12. Connecting temporality to cognitive complexity is not unheard of; there is, for example, much interesting research into different cognisers' relation to the future. Two comprehensive overviews of such work can be found in Raby and Clayton (2009) and Suddendorf and Corballis (2007). Whilst neither study's conception of futurity is equivalent to mine, I think that there are opportunities for further collaboration here.
13. These descriptions may remind the reader of Heidegger's account of authenticity. The advent of Being-towards-death is what I would (with deliberate oversimplification) call one of the 'existential complications' encountered by a cogniser of Dasein's temporal complexity.
14. This is further suggested by Di Paolo's own emphasis upon the temporal dimension of enactive cognition. For him, there is 'a *minimum temporal granularity* in adaptivity' (444, original italics) that is necessary to account for the ways in which 'the ongoing coupling with the environment, and the precariousness of metabolism, make their collective action also self-renewing, thus naturally resulting in *valenced rhythms of tension and satisfaction*' (444–445, original italics). I think that this is just the kind of account that can enter into dialogue with a Heideggerian model of temporality as inherently purposive, self-concerned and futural, one that is thick enough to accommodate and account for valence and can connect self-concern with future-directedness in a way that makes sense of precariousness.
15. Thanks to Richard Sebold for inspiring this way of articulating the idea.

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