Book Review: The Quiet Heideggerian

Ezequiel A. Di Paolo
CCNR, COGS, University of Sussex
Brighton, BN1 9QH, UK
ezequiel@sussex.ac.uk

Reconstructing the Cognitive World: The Next Step. Michael Wheeler. (2005, MIT Press.) ISBN 0-262-23240-5, 432 pages. $35.00/£22.95.

The hammer is in mid air—muscles tensed—the arm's trajectory reaching the point of return. The head of the nail is now almost level with the smooth wooden surface. Just as the final blow is about to bring the job to its satisfactory completion, the telephone rings. An urgent message you have been awaiting impatiently. This may be it. What happens next?

If you are built along the principles of Cartesian psychology, as outlined with clarity and thoroughness by Mike Wheeler in his new book, you will instruct your arm to stop right there. You will evaluate that the phone call is more urgent than the hammering and that you can always come back to this job later. The assessment of priorities is purely a matter of inferential weighting. The body obeys the executive command of your thought; the switch between situations happens in no time.

But, what does actually happen? In all likelihood, being so close to completion, hammering will continue against all rationality. If you managed to resist the demanding pull of the task and stop it, you would still feel your shift in concern as a tension. Through some intentional inertia your body is still partly engaged in the hammering activity even as it begins to focus on the new one. Hammering does not give way instantly or uniformly to a new mode of concern; there is an emotional tonality to the abandoning of the task. All this takes finite time, and it doesn't happen in a unified way; you may already be walking towards the phone, but the hammer is still tightly in your grip, unnecessarily ready to strike a blow.

If cognitive science is to explain such widespread experiences and not only higher-order human capabilities, such as engaging in conceptual thought, planning, and mathematics, then Cartesian psychology is in trouble. If, as many believe, such common everyday events must be explained first *in order* to understand those higher-order capabilities, then a project departing from a radically different base is needed. Wheeler's aim is to convince the reader of this point and to lay out the plan for such a program.

Stylistically, the book is a joy to read. The first part does a great job in articulating Cartesian psychology into a series of principles (a clear-cut subject/object distinction; the disembodied, inferential, and representational nature of cognition; the environment as a source of problems and information; and so forth) and then proceeding to show that orthodox cognitive science can be justifiably called Cartesian because it holds to these principles. Few people who complain about Cartesianism are so clear about what they understand by it, and fewer still are willing to see the Cartesian aspects of some of their own beliefs.

Wheeler claims that some of the most recent shifts in the study of cognition (e.g., dynamical systems and embodied-embedded turns) are Heideggerian in character (or could be so construed). For this, it is necessary to expose Heidegger's relevant ideas (part I of *Being and Time*). Wheeler highlights the anti-Cartesian character of Heideggerian phenomenology (not a minor job, and one that is convincingly carried out in a couple of chapters of unusual clarity, which have the added benefit of rendering Heidegger's ideas accessible to the newcomer).

How non-dualistic is this Heideggerian framework? It's important to highlight that even if human agency and world co-arise, Heidegger famously puts very little emphasis on the connecting tissues that link agent and world. In other words, Heidegger's suitability for a positive scientific project is far from obvious. Little weight is put on corporeality, and practically no attention is paid to any kind of continuity thesis between life and mind. This well-known problem (philosophers have long

recognized it and have turned for solutions to other phenomenologies and ontologies, such as those of the later Husserl, Merleau-Ponty, Hans Jonas, and Jan Patočka) is highly relevant for cognitive scientists interested in operational theories and who would be typically engaged in projects aiming at explaining embodied cognition from the ground up, from simple insectlike behavior to human-level capabilities.

Heidegger's focus is heavily inclined towards the human cultural end of the spectrum. For him, everyday practices acquire their significance by virtue of their belonging to a network of practice, a context of meanings and purposes. This view is powerful enough to enable Wheeler to deploy some very strong arguments against traditional cognitivism. Such blows, however, are accompanied with a new set of problems, particularly for those researchers who put their sights precisely on "the next step." The being of human agency (Wheeler's rendition of *Dasein*) is to make its own being an issue for itself. Hence not only do we have an agent, it is an agent that turns its perspective-taking and sense-making upon itself and that defines itself as a project within the network of socio-cultural significance that is its world. But this amazingly sophisticated capability must have roots elsewhere—perhaps in animality, perhaps in organismic sense-making. And these links are not clearly there to be investigated yet. So how useful is Heidegger for a bottom-up approach to cognition?

Very useful, Wheeler argues, because he clarifies how an involvement network—a set of related goal-directed and mutually grounding activities (I hammer the nail to fix the board to complete the door to finish the cabin to live in it securely)—can serve as a well-defined frame for cognitive activity. If such structures could be found that resemble these networks in other forms of life (or fulfill a similar role), we would stop from falling into traps such as the frame problem in AI. We would make the active construction and making sense of such structures—such a world—by the cognitive agent the focus and starting point of any serious investigation in cognitive science, no matter how minimal the system we are concerned with: a robot, a fly, or an infant. This indeed would be a radical turn. Why do things matter? Why is the world of any significance at all for a cognitive system?

Even embodied-embedded cognitive science today (epitomized by research in autonomous robotics) is still too much influenced by the computational theory of mind. The driving questions are often of the form: how can we make our system do something more complex, solve a more difficult task? A Heideggerian turn would put such an attitude on its head. Why would such a system *need* to learn that? Why *should* this robot cope with a more complex situation? Why would it *matter* to it at all? How can we make robots that *care*? For all real cognitive systems—no exception—such questions come first.

According to Wheeler, some dynamical systems approaches to cognition may already be called Heideggerian. But I think they're not quite here yet. For this we must be able to provide a dynamical account of the *meaning* of a situation for the agent. Moreover, we should be able to account dynamically for the transversing between the different Heideggerian modes, from skillful coping to breakdowns to perhaps other modes not so famously thematized by Heidegger, such as openness-to-action, distraction, or confusion. We would like to see robots that are able to transit between engagement in different activities by being capable of finding new metastable flows of skillful coping whenever there is a breakdown in the environmental or bodily context, and by being adaptively capable of selecting new dynamical fields either for the current task or for a new one with respect to the meaningful context of their intentions. While not providing many answers yet, dynamical systems theory is already useful in providing at least a language to start framing these questions.

Wheeler takes into account previous criticisms of the same sort, notably by Hubert Dreyfus. But he is only too aware that critical attitudes from a very different vantage point from that of people working on models and building theories "on the ground" have in the past only led to a standoff. It is only when a critical viewpoint shapes itself as a positive alternative that a proper paradigm shift may be at the door. Wheeler clearly recognizes this and illustrates his arguments with many cutting-edge examples from evolutionary and autonomous robotics. In this he wants to distinguish his project from previous Heideggerian criticisms of AI.

For all its brave push towards new ways of facing the challenges of cognitive science, the book is disappointing in its obsessive concern with rescuing an acceptable and coherent notion of representation—that old Cartesian fossil that Wheeler seems so keen on conserving (nostalgia?) even at the risk of making his own project unworkable. His analysis of cognitive technology could be applied reflexively to his own project and we could ask what kind of job we might expect from newly clothed representationalism that would not eventually defeat the purpose of expunging Cartesian thinking from cognitive science.

In light of the very compelling evidence for nonrepresentational explanations of what he defines as "online" intelligence (rich use of sensorimotor couplings and situated activity, e.g., in ordering the pieces of a jigsaw puzzle by color), Wheeler is faced with two options. Perhaps similar kinds of embodied-embedded explanations may account for "offline" cognitive performance (activities whose target content is not the coping with the current sensorimotor context, e.g., remembering the house of your childhood). Not clear yet how this would be done convincingly, but certainly there is no definitive argument against this idea, nor does phenomenology make this position suspect.

The other route, the one he takes, is to establish a continuity from embodied-embedded, causally spread, and nonrepresentational explanations to fully fledged computational, representational stories that would seem to fit higher mental function. But wouldn't this be saying that eventually we are Cartesian after all? Some, if not all, of our mental life has all the hallmarks of Cartesian representationalism in this view. After establishing Heidegger's anti-Cartesianism, Wheeler seems confident that the second option, that of a nonrepresentational-representational explanatory continuum, is supported by the categories of Heidegger's phenomenology. Hence, the project would apparently inherit Heidegger's anti-Cartesianism and, presto, new cognitive science is off the ground. But this project depends on establishing some very loose parallels that do not resist closer phenomenological inspection.

The Heideggerian category of the ready-to-hand, the mode of engaging the world that is characteristic of skillful coping (activities such as hammering, typing, getting dressed) is linked to "online" intelligence. The category of the present-at-hand (detached, reflective contemplation of an experience) is linked to "offline" intelligence. And in between there is a continuum, the un-ready-to-hand, the concernful practical activity that is partly interrupted, partly modulated by partial removals from coping (e.g., a distracting lawnmower's buzz while I'm typing this text, or a foreign keyboard that makes writing progress very slow). The first category, according to Wheeler, corresponds to nonrepresentational, embodied explanations; the second, in the extreme, will call for classical computational-representational explanatory strategies, and the middle one will therefore call for "action-oriented representations," the transitional concept that Wheeler goes to great lengths to try to define coherently.

The whole idea rests on the link between the ready-to-hand—present-at-hand and the online-offline distinction. To begin with, the latter distinction is confusing, and the confusion is revealed precisely in the impossibility of establishing the putative link to Heidegger's categories.

"Online" and "offline" are poorly chosen terms, as they suggest that intelligent performance either responds solely to the physical aspects of a situation or is somehow magically detached from them. In fact, cognition always involves the *meaning* of a situation, both when this is modulated by rich sensorimotor couplings with environmental dynamics and when it is not. Indeed, the sense-making capability of a skilled cognizer may find novel meanings in a same physical situation, but even in highly complex abstract thought, such as doing mathematics, the embodied material aspects of the performance often remain crucial (pen and paper, writing down an argument and then reading it, gesturing in space, etc.). The detachment achieved by the (rather rare) activities that do not seem to involve any nontrivial coupling with environmental dynamics is only apparent, since the anchoring of such activities to the here-and-now still happens through the cognizer's body. This tired, anxious body is trying to work out from badly remembered train timetables whether to go for a relaxing drink or make an early night. Cognition is never decoupled from the body. The body is the common ground in both so-called online and offline intelligence.

Even when the distinction is problematic, there is indeed something that it is trying to point to. I suggest this is best understood as different ways in which an agent can actively construct

the meaning of its coupling with the world. Properly understood, even when rich sensorimotor couplings are involved, the agent responds to the meaning of the situation and is therefore already at one level removed from the constraints of physical coupling (for multiple physical couplings could be construed as having the same meaning). The situation proper is always meaningful and in demand of some skill. Doing mental calculations to figure out how to split the restaurant bill fairly among a number of people, presumably a case of offline intelligence, is a skill that is demanded by the situation, just like that of hammering a nail. It is a manifestation of the ready-to-hand. It is a call to action and provides, in the absence of breakdowns, no further phenomenology than that of general Heideggerian skillful coping.

The proposal of setting a parallel between online intelligence and skillful coping (ready-to-hand) and offline intelligence and detached regarding (present-at-hand) fails. So-called offline performance (higher-mental function) would typically require the online deployment of skills and cognitive technologies; its concern will typically remain practical, that is, within the ready-to-hand. Hence the same sort of explanatory strategy used for online performance should be given a chance. In short, Wheeler should not discard the first option available to him: that all of cognition might be better approached in nonrepresentational terms (*even our representational performances*). Hence, all of cognitive science might turn out to be non-Cartesian.

To come back to the question of continuity between life and mind, according to Heidegger, animals are poor in world, while *Dasein* configures its world. This theme appears frequently in the book. Can a Heideggerian project also be a naturalistic one? What constitutes an animal's world? We need not argue that some nonhuman species show fascinating examples of culture; we simply need to establish that there are forces that provide an animal's world with normativity and a context of significance. These processes are linked to evolution and the self-sustaining organization of animal-embodied agency (the first is discussed in the book, but not the second). I think that Wheeler's intuitions are right and that Heideggerian-style naturalism is indeed possible and adequate for cognitive science. But something is missed if we don't attempt to articulate the difference between *Dasein* and animality as modes of existence (we're granting that animality *is* a mode of existence, as a proper naturalistic view would have to uphold). Their difference is not simply relegated to the source of their context of significance (the one bio-cultural, the other biological). It is also important to remember that they are different modes of being. *Dasein* is inherently social, a mode of being for whom its own being is an issue. *Dasein* engages in *projects* of self-transformation. We don't see animals engaging in yoga practice, going on a diet to improve their self-image, or worrying about their careers. This is important, as it highlights some essentially human aspects of cognition, a qualitative jump that is made only more conspicuous by adopting a naturalistic view of continuity.

In summary, continuity is a conceptual tool to be used with care. We may see in it the guiding road towards a naturalization of human cognition, but we should not force it everywhere and at all costs. Discontinuities can be part of a naturalistic story too. Wheeler succeeds in putting all these important issues on the table in what could turn out to be the initial articulation for the most radical break in cognitive science in decades. If only he weren't so nostalgic about representations!