

Situated Cognition and the Study of Culture: An Introduction

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Abstract: The article surveys three major positions in early debates about situated cognition in the 1990s as they are represented in particular in the work of Edwin Hutchins, Jean Lave, Etienne Wenger, Tim van Gelder, Andy Clark, Jerome Bruner and John Haugeland. Rather than arbitrate among the three positions and declare a winner, the article suggests that the very tensions between sub-personal, supra-personal and personal levels of analysis evident in the debates are a necessary feature of the study of situated cognition, which can be resolved only by the sort of case by case negotiation of which we find records in the cultural archive. The eight case studies collected in this special issue can be read as explorations of the historical variety of these lived negotiations.

Key words: situated cognition, cognition in the wild, extended mind, history of cognition

This special issue on “Situated Cognition and the Study of Culture” addresses the question of how to think cognitively about historical specificity. The concern has been prominent in cognitive literary studies since, at the very latest, the *Introduction to Cognitive Cultural Studies* edited by Lisa Zunshine (Zunshine 2010), although it has been under discussion since Ellen Spolsky’s early interest in the specific social circumstances that might support our evolved capacity for adaptation and change (Spolsky 1993: 12). As recent works by Spolsky and Terence Cave, two contributors to this Special Issue, attest (Spolsky 2015; Cave 2016), the focus of debate is changing as discussion of the embodied, embedded, extended and enactive nature of cognition—the 4 Es—is interlaced with questions about changing social environments in which such cognitive activity occurs.¹ Big theories about the fundamental structure

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of (4E) cognition are being complemented and challenged by case studies that have renounced the larger claims and focus instead on the lived experiences—the joys, mishaps, surprises, struggles, misunderstandings, hopes and day-to-day negotiations—of the historical agents who participate in the adventure of human knowledge.² To prepare the ground for the eight cognitive cultural case studies that follow, this introduction will take a step back to the 1990s to revisit three different positions in the early theoretical debates about situated cognition as a way of setting out the productive tensions to which current discussions are still the heirs.³ In their very irreconcilability, these tensions tell us something about the field of study itself, and explain why attention to detail is not an optional addition but, rather, an important tool for elaborating a complex and historically grounded approach to situated cognition. With this general framework for discussion established, the essays that follow focus on aesthetic versions of situated cognition, making the case for productive exchange between the wider, philosophically-oriented debate and the analysis of particular cultural examples. The original impulse for this collection was the third conference of the Cognitive Futures in the Humanities network, which took place at the University of Oxford in April 2015 on the theme of “History and Cognition.”

1. Re-Situating Situated Cognition

The term “situated cognition” became common currency in work associated with the Institute for Research on Learning in Palo Alto, California, during the late 1980s and early 1990s (Brown, Collins, and Duguid 1989; Clancey 1997). However, as Shaun Gallagher notes in his account of “Philosophical Antecedents of Situated Cognition,” a concern with both the bodily and social context of human knowledge can be found as long ago as Aristotle, if not earlier, and twenty-first century debates are indebted to

¹ Lawrence Shapiro offers a fair-minded, empirically-oriented critique of 4E approaches in the wider context of what he terms the “embodied cognition research programme” (Shapiro 2011). *The Routledge Handbook of Embodied Cognition* (Shapiro 2014) is pluralistically conceived to include the different voices in debates about embodied cognition.

² See in particular the Edinburgh-based project on the History of Distributed Cognition, run by Miranda Anderson: <http://www.hdc.ed.ac.uk/>, and also the recent collection *Cognition, Literature, and History* (Bruhn and Wehrs 2014).

³ For a recent comprehensive review of the literature on situated cognition, see Roth and Jornet (2013).

early twentieth-century philosophy, especially the work of Dewey, Heidegger, Merleau-Ponty, and Wittgenstein (Gallagher 2009). Looking back, almost thirty years later, one striking aspect of the debates circa 1990 amongst “early adopters” of the term “situated cognition” is the special emphasis on cultural practices. This focus on practice, rather than on the brain-in-the-body that features so prominently in more recent studies, might be explained by noting that this generation of thinkers was technologically constrained: the early 1990s were the very beginning of the “Decade of the Brain” which has since so transformed the state of our knowledge, as fMRI technology enabled researchers to map human brain activity in a non-intrusive way and to study the multifaceted neural substrates of human cognition. In other words, the first discussions of situated cognition pre-date the era in which scanners allowed researchers to make the brain and the body it inhabits more central to analysis than the wider context of social activity.⁴ However, it was not a technological deficit that determined the practice-centered approach. A specific methodological orientation led the ‘early adopters’ to prefer investigating human cognition in the context of everyday interaction rather than through the de-contextualized tasks used in the laboratory environment. As Barbara Rogoff argued: “Thinking is intricately interwoven with the context of the problem to be solved” (Rogoff and Lave 1984: 2). And that context includes the physical form in which a problem arises (for instance, mental arithmetic in the supermarket as opposed to the class room or lab), and the social milieu and social norms that frame it: the people involved, and the reasons we have for doing it in the first place. Brown, Collins and Duguid concurred: “knowledge is situated, being in part a product of the activity, context, and culture in which it is developed and used” (Brown, Collins, and Duguid 1989: 32).

In 1995, two philosophers, John Haugeland and Tim van Gelder (who studied under Haugeland at the University of Pittsburgh in the 1980s), both published papers that made explicit how this change of focus entailed more than a turn to everyday cognition—or what Edwin Hutchins termed “cognition in the wild” (Hutchins 1995)—as a new topic of research. It meant adopting a different ontology. Cognition is not the special privilege of mind conceived as “an independent ontological domain”

⁴ Matthew Lieberman’s *Social: Why Our Brains Are Wired to Connect* is an eloquent example of the more recent brain-based approach to social interaction, drawing in particular on Lieberman’s and Naomi Eisenberger’s work at the Social Cognitive Neuroscience Laboratory at UCLA (Lieberman 2013).

(Haugeland 1998: 207). Analysis should thus focus on “the ongoing, real-time interaction of the situated agent with a changing world” (Van Gelder 1995: 381). “The Cartesian tradition is mistaken in supposing that mind is an inner entity of any kind, whether mind-stuff, brain states or whatever. Ontologically, mind is much more a matter of what we *do* within environmental and social possibilities and bounds” (Van Gelder 1995: 380). The point Haugeland and van Gelder make is perhaps weakened by the all too familiar trope of Descartes as the bogeyman of the debate (Sutton 2000; Wheeler 2005; Dehaene 2014: 3-6). Nevertheless, the step-change is clear enough. Cognition is something we do with other people in particular contexts. If we attempt to abstract the form of human knowledge from the situations in which it arises, we will no longer be studying human knowledge, but an artefact created by our methodological assumptions.

This argument was forcefully articulated by Hutchins’s book-length analysis of navigation in the US navy (Hutchins 1995). The book shows how the work of a navigation team depends not only on sharing tasks amongst the group, but also on “the increasing crystallization of knowledge and practice in the physical structure of artifacts” (Hutchins 1995: 95) such as charts, fathometer and nautical slide rule, and on the layout of the space the navigators work in. Novices can contribute to the process even before they fully understand what they are doing, guided by the tools and the space they collaborate in, but also by the social know-how they bring to the group. Working in the specially structured environment of the pilothouse, following the cultural habits of the group and deploying the technological aids that have been developed over centuries of navigational practice, they contribute to the computations, however dim their individual grasp of the situation: “Sometimes we discover *why* we do some task the way we do long after we have learned to do the task itself” (Hutchins 1995: 306).

The special appeal of Hutchins’s analysis is his suggestion that we can study cognition without making claims about brain states or neural processes: “It might be possible to go quite far with a cognitive science that is neither mentalistic (remaining agnostic on the issue of representations ‘in the head’) nor behavioristic (remaining committed to the analysis of information processing and the transformation of representations ‘inside the cognitive system’)” (Hutchins 1995: 129). The focus of such a study is culture itself: the observable interactions between human beings in their usual habitats (Hutchins 1995: 129). We need few special tools, for this

approach, beyond patient documentation and open-mindedness.⁵ (Wittgenstein made a similar point in a different idiom in his *Philosophical Investigations*, with his emphasis on paying attention to the circumstances in which we use words: on the “form of life” that sustains cultural activity and makes it meaningful; Wittgenstein 2009: 11 [§19], 15 [§23]).

For the early adopters, cognition was thus not an abstract and abstractable computational process of the sort the first-generation cognitive scientists Allen Newell and Herbert Simon hoped to have reproduced with their General Problem Solver programme (Newell and Simon 1961), but rather the particular habits people developed to solve particular problems. The early adopters shared “a view of knowing as activity by specific people in specific circumstances” (Lave and Wenger 1991: 52). If there was an element of abstraction in this quasi-nominalist attention to specificity, it was in the general claim that cognition will always be situated. But there was also a further point we should note. Cognition was thought to be inseparable from the processes by which the relevant habits were acquired, mastered and transmitted. Knowledge, for the early adopters, is always connected with the induction of others into the social know-how: with learning and instruction. To that extent, it has a normative element: cognition entails acculturation (Menary 2010; Hutchins 2011).

To view cognition as socially situated and normative has a number of methodological consequences. I’ll be returning to norms later. For the moment the important point is that both cognition and learning appeared to early adopters to be distributed. In Hutchins’s study, the navigation team, when faced with the novel situation of losing power and almost running aground, find a workable solution collaboratively without any of the individuals taking a lead, or having a clear insight as to what they had achieved beyond dealing with the problem to hand. No-one reflected on the process as a whole (Hutchins 1995: 347). Moreover, it was social as much as computational changes (a shift in the way two of the navigators related to each other) that paved the way for the new solution (Hutchins 1995: 332-35), leading Hutchins to conclude: “Before its discovery by the system as a whole [...], the final configuration appears not to have been represented or understood by any of the participants” (Hutchins 1995: 349).

⁵ This is not to say Hutchins is a Luddite. *Cognition in the Wild* supplements Hutchins’s anthropological observations of practices in the pilothouse with computer modeling of communicative structures (Hutchins 1995: 239-61).

A similar insight can be found in Jean Lave's and Etienne Wenger's account of the way apprentices develop their skills by being allowed to participate more and more fully in the activity in which they will eventually become masters. Learning is not about internalizing information or a set of rules, but rather about taking part with others in an activity that we want to become skilled at: learning is inseparable from, and distributed across, the whole social setting in which we participate. Indeed, Lave and Wenger suggest that it's most accurate to say that the situated practice itself does the teaching: "mastery resides not in the master but in the organization of the community of practice of which the master is a part" (Lave and Wenger 1991: 94).

This makes learning a rather elusive phenomenon: we can see where it happens, and note that it does happen (problems are solved, people are trained, the ship does not run aground). But if we want to understand the exact mechanisms for these achievements, they are hard to pin down. Who exactly learns what, when, and how? The same questions could be raised about the account that Tim van Gelder—drawing on work of Jerome Busemeyer and James Townsend (Busemeyer and Townsend 1993)—gave of making decisions in his influential article asking "What Might Cognition Be, If Not Computation?" (1995). In this account, decisions arise because of the tightly interlocked relationship between individuals and the environment which structures their responses (rather as the pilothouse in a ship structures the responses of the navigation team in Hutchins's account). As van Gelder provocatively summarizes: "this is decision making without decisions, so to speak, for there never are in the model any discrete internal occurrences that one could characterize as decisions" (Van Gelder 1995: 361).

Early adopters of the term "situated cognition" studied interaction and context, and, in the process, showed little or no interest in what was happening in the heads of their subjects. We can thus see that if they did not appeal to fMRI scans, it was because they were not sure that brain information could add significantly to an understanding of the practices they analyse. The same scepticism lives on in Alva Noë's recent critique of neuroaesthetics. For Noë, aesthetic experience is not an isolated neural effect, but a complex interaction with context (like getting a joke), that is shaped by training and familiarity and also by the arguments and discussions we have about the experience, changing it as the conversation and our attitudes develop (Noë 2015: 132). This embodied, active, social process will involve the brain. However, "Aesthetic responses...are not symptoms or reactions or stable quantities.

They are actions. They are modes of participation.... There is nothing about which we can even ask: What are its neural correlates?" (Noë 2015: 132-33).

This gives us a flavor of one aspect of the debate in the 1990s and shows us how the approach finds a contemporary echo. But there were other positions—most notably Andy Clark's. Clark's *Being There* (1997) was a seminal text for debates about situated cognition. The argument drew together research from many fields including robotics, neural networks, developmental psychology, decision making, neuroscience and philosophy of mind, and combined these with Hutchins's analyses of the environmental scaffolding of cognitive processes to articulate an influential account of "the kind of dynamics and complex response loops that couple real brains, bodies and environments" (Clark 1997: 1-2). Like Hutchins, and Lave and Wenger, Clark highlighted the ways in which intelligent activity is shaped, mediated and enabled by the bodily, social and natural environment in which it unfolds. In his account, cognitive processes opportunistically co-opt resources in the body and local environment (Clark 1997: 80). We off-load the work of making sense of the environment onto the environment itself. The culmination of the argument is the topos of the "extended" mind (Clark 1997: 85; Clark and Chalmers 1998), which reaches out to the world to "create cognitive and computational webs: webs whose understanding and analysis requires the application of tools and concepts of cognitive science to larger, hybrid entities comprising brains, bodies, and a wide variety of external structures and processes" (Clark 1997: 218).

Clark's hybrid webs suggest an upbeat, evolutionary model of cognition for which the surroundings in which a human and other animal life develops promote as much as hinder intelligent activity: "biological systems profit *profoundly* from the local environmental structure" (Clark 1997: 220). At the same time, Clark's emphases are importantly different from those of early adopters like Hutchins or Lave and Wenger, or dynamic systems theorists like van Gelder, carving out a distinct "extended mind" position over and beyond the commonalities in conceptual metaphors (for instance, cognitive "opportunism") (Hutchins 1995: 172) and intellectual lineage (for instance, the invocations of the Soviet developmental psychologist Lev Vygotsky) (Lave and Wenger 1991: 48-49; Hutchins: 283-85; Clark 1997: 194-95). Attention to Clark's imagery is instructive in the respect. On the one hand, "The mind is a leaky organ" (Clark 1997: 53), whose "seepage...threatens to reconfigure our fundamental self-image" (Clark 1997: 214). On the other hand, the

coupled hybrid can be broken down into “the human brain *plus*...chunks of external scaffolding” (Clark 1997: 180). What the metaphors betray is that, for Clark, the natural home of cognition (following “our fundamental self-image”) is the head: the mind leaks out, the brain gains external appendages, but the original site of cognitive activity remains intra-cranial (Hutchins 2011). Hutchins, by contrast, is more cautious in the way he presents the “cognitive bricoleurs” who opportunistically assemble “functional systems composed of internal and external structures” (Hutchins 1995: 172). The complex interactions don’t, for Hutchins, divide easily into inner v. outer resources but rather form an integrated cognitive gestalt, exemplified by the skill with which a navigator might look at constellations of stars: “situated seeing” (Hutchins 1995: 172).

The point of this survey is not to arbitrate between models but to present their differing logics and implications. Clark’s interest in the brain arises from the particular concerns, and indeed the particular ontology, that inform his version of situated cognition, differentiating it from the position of early adopters like Hutchins, Lave and Wenger, and van Gelder. Responding to van Gelder, Busemeyer and Townsend and similar positions in *Being There*, Clark argues that an account such as theirs of deciding, or learning, or knowing that cannot mark out the individual steps of the process and relate these to recognizable elements in the brain/body of the people involved is insufficient for two reasons. First, it is insufficient because it makes it impossible for researchers in robotics or AI to reconstruct or artificially engineer the processes described (they have no obvious components to model or steps to retrace) (Clark 1997: 119-27). Secondly, it is insufficient because it does not help us establish a “biologically realistic” (Clark 1997: 140) account of cognition that acknowledges the complex interactions of brain, mind and body, without relinquishing the idea of grounding the interactions in a neurologically informed account of bodily processes: “The stress on organism-environment interactions should...not be seen as yet another excuse for cognitive science to avoid confrontation with the biological brain” (Clark 1997: 130).

Early arguments about situated cognition thus pull in different directions. Beyond a shared commitment to approaching both body and environment as integral parts of intelligent human activity, one side of the debate emphasizes the unitary nature of the process, and so takes as its level of analysis interactions of the whole conglomerate; the other is concerned to investigate the bodily and neuronal

components in more detail. The disagreement has often been framed in terms of the vast literature on mental representation in philosophy of mind, as thinkers have argued over the degree to which processes in the brain ‘represent’ other, intra- or extra-cranial elements of the on-going dynamic of engaging with the world (Brooks 1991; Clark and Toribio 1994; Van Gelder 1995; Clark 1997: 143-75; Gallagher 2008; Chemero 2009). But to researchers in literary and cultural studies for whom works of culture often, if not always, represent something, this debate can seem arcane or misleading. At the cultural level of analysis, representation cannot be done away with by a theoretical fiat. If we want to police the use and applicability of the term, we can do so only by giving careful, historically grounded accounts of all that representation entails; that is to say, accounts of the attendant circumstances that allow a particular practice to function representatively for those who participate in it.

To understand the substance of the tension in the early debates about situated cognition, a vocabulary other than that of representation is more helpful. Underlying the tension is a disagreement about context. How much can a component be understood independently of the wider dynamic context of which it is a part? Do we distort our model of intelligent activity if we isolate moments in the process? Of special interest to cultural analyses are the implications that these questions have for the inclusion of the body as a necessary component of aesthetic practice. If we take the view that we are dealing with intelligent human activity as a unitary phenomenon it doesn't make sense artificially to separate out an element called the body, as Maxine Sheets-Johnstone forcefully pointed out in 1999 when she criticized the term “embodiment” as “a lexical band-aid covering a three-hundred year old Western wound” (Sheets-Johnstone 1999: 359). This is, at root, an Aristotelian position. For Aristotle, in *De Anima*, human cognition arises in all but the most rarefied instances from our physiological involvement with the environment, but the somatic aspect cannot be isolated as a mere foundation for the higher conceptual level (Nussbaum and Putnam 1992). Take the examples of being angry or being confident about something. Both will obviously involve a physiological response and a conceptual component, but neither of these makes sense if separated from the context of human interaction that made the person feel aggrieved or assured (Aristotle 2016: 3 [403a]). Being angry or being confident, but also “gentleness, fear, pity, courage as well as joy, and loving and hating” (Aristotle 2016: 3 [403a]) are all what David Charles has termed “inextricably psychophysical processes” (Charles 2008: 17). So our object of

study is not the body, so much as cognitive occasions—an Aristotelian rebranding of Hutchins's "cognition in the wild."

On the other side of the argument we find the worry that staying on the level of cognitive occasions leaves us too much in the dark about mechanisms. This worry is related to the question of norms that we have already seen arising in accounts of the wider context of situated cognition. The wider context is the site of the transmission of knowledge: while we figure out the world, we also pass on the practices that underpin our epistemological labors. For the holistic approach, on the one hand, this process functions as a delicate ecology, which we need to study in its entirety before we start picking things apart. The approach is inspired by Aristotle, but also by ordinary language philosophers like Wittgenstein and Austin, and by the attention paid in anthropology and cultural studies to everyday practices. Like these approaches, it is guided by the premise that patient description should precede intervention and reform since the ecological whole, in most cases, works well enough. Just as, for Hutchins, technological devices are "repositories of knowledge" (Hutchins 1995: 96), so for Austin "our common stock of words embodies all the distinctions men have found worth drawing, and connexions they have found worth marking, in lifetimes of many generations" (Austin 1979: 182). The holistic approach thinks that culture operates well enough for us to learn from it before we try artificially to disaggregate its components and re-engineer a pale, if more systematic, alternative. For those more interested in components, on the other hand, the question of engineering—or of re-engineering—is more urgent. This is partly because insights into the particular parts of brain and body involved in cognition have arisen through the study of lesions and injuries that affect cognitive abilities (Clark 1997: 124-27). But the interest in components, be they neural or somatic, also arises where there is the hope that analysing and drawing attention to the contribution of a particular somatic component will allow us to re-think and re-model how that particular cognitive activity is undertaken. In the view of proponents of this component-oriented approach, the crucial and necessary contribution of the body is often not sufficiently recognized. This can have unpleasant normative consequences if patterns of behaviour hostile to the body are transmitted and reinforced with the reproduction of the wider culture of which the body is an integral part.

Another way to understand these two impulses is to contrast the supra-personal and the sub-personal levels. In both cases, elements beyond the level of

conscious awareness structure human activity: the disagreement is about the relative importance of the two, but also, more fundamentally, about underlying attitudes. Can we document and respect the whole ecology without in the end producing a form of mystification sanctioned by an appeal to the “emergent properties” of the whole constellation? Can we isolate components without inadvertently reproducing the very intellectual habits dividing body, brain and world that the project of studying situated cognition is meant to transcend? These questions aren’t easily answerable, and an integrative grand theory or single architecture (Anderson 2014; Clark 2016) must confront the problem that the different approaches are underpinned by different ontologies; that is to say, by different lived experiences of the world whose disagreement must be resolved practically as much as theoretically. Moreover, there is at least one more fundamental position that was a feature of the debates of the 1990s, and that continues to play an important role current debates: a level of analysis that sits between the supra- and the sub-personal, which is something like the level of lived interaction, folk psychology and narrative: the level of the personal.

An influential articulation of an approach focusing on this level can be found in Jerome Bruner’s *Acts of Meaning* (1990). Like other advocates of situated cognition, Bruner’s work is reacting against the first-generation of AI researchers, who took “computation as the metaphor of the new cognitive science” (Bruner 1990: 8). In place of computation, Bruner turns to “the concept of meaning and the processes by which meanings are created and negotiated within a community” (Bruner 1990: 11). This approach happily inhabits the sphere of things that people say about what they do, and is not concerned by the gaps between self-understanding and actual behaviour that social psychology is very good at revealing (Kahneman 2011). Instead, it insists that: “Saying and doing represent a functionally inseparable unit in a culturally oriented psychology” (Bruner 1990: 19). Where there are mismatches between deeds and words these are interpretable; they are part of the on-going conversation, as are any attempts we make to realign our self-understanding and our behaviour (Bruner 1990: 19). Whatever the supra- or sub-personal forces shaping our lives, we come to terms with them and endeavour to give them shape at the level of the personal: in our conversations, our folk psychology and our narrative culture.

Bruner’s appeal to the level of human meaning was echoed by Haugeland in his programmatic essay “Mind Embodied and Embedded” (1995). A note to the text conveys something of the intellectual milieu from which it emerged: “Mind

Embodied and Embedded' grew out of discussions with Bill Clancey, Alison Gopnik, and especially Bert Dreyfus at a conference in Santa Fe in June 1992, where a preliminary version was then hastily composed and presented" (Haugeland 1998: 365). Clancey, the author of *Situated Cognition* (1997), worked at the Institute for Research on Learning and specialized in AI and robotics; Gopnik and Dreyfus both taught at Berkeley, Gopnik as a developmental psychologist, who originally trained with Bruner in Oxford, and Dreyfus as a philosopher who combined the early Heidegger with Dewey and Wittgenstein to produce an influential, if contested account of situated, everyday action (Dreyfus 1991; Sutton et al. 2011). These different currents combine in Haugeland's argument to produce a version of meaning which questions the very appeal to the personal level that Bruner hopes it will underwrite, bringing us, as we shall see, to the larger question of how the different levels of the personal, the sub-personal and the supra-personal are to be coherently united, if at all.

In the essay, Haugeland is addressing the same concerns that we've already seen in the debate between Andy Clark and those early adopters who favoured a more holistic approach. Like the other holistic or supra-personal thinkers, he is searching for a vocabulary that adequately conveys the unity of body, mind and world as they interact, and suggests that the word "intimacy" best conveys this: "The term 'intimacy' is meant to suggest more than just necessary interrelation or interdependence but a kind of *commingling* or *integralness of mind, body, and world*—that is, to undermine their very distinctness" (Haugeland 1998: 205). Even as he undermines the distinctness, he acknowledges that it is nevertheless often useful or necessary to distinguish, and insists that the choice of where we draw the lines will be pragmatic as opposed to ontological, that is, guided by the particular task we are engaged in, or the problem we are trying to solve (Haugeland 1998: 216).

Haugeland thus hopes to straddle the gap between the supra- and the sub-personal approaches by combining a principled commitment to a holistic view with a pragmatic acknowledgment that distinctions and components are useful in some circumstances. I will return in a moment to the plausibility of this elegant switching between alternative perspectives. But before doing so, we need also to note how Haugeland includes the third, personal level in his argument. Like Bruner, he emphasizes meaning, but the idea has a slightly different function in his argument. Haugeland comments on how hard it is, when studying intelligent human activity, to

trace the point at which the intelligence stops and something like the raw stuff of the world begins. In doing so, he is following a similar line of thought to that we've already seen in Clark's work and that was elaborated in more detail by Clark and David Chalmers in their celebrated paper on "The Extended Mind" (Clark and Chalmers 1998). But where, for Clark and Chalmers, the mind starts inside the skull and "leaks" out into the world, Haugeland, in a Heideggerian move, suggests rather that there is a bigger category, in which we are always already involved, that is the medium of our embodied and embedded intelligent action. The name that Haugeland gives this larger, all-enveloping level is that of the meaningful: "Intelligence abides in the *meaningful*.... Intelligence...is nothing other than the overall interactive structure of meaningful behaviour and objects" (Haugeland 1998: 230). He continues: "The meaningful is not in our mind or brain, but is instead essentially worldly. The meaningful is not a model—that is, it's not representational—but is instead objects embedded in their context of references. And we do not store the meaningful inside of ourselves, but rather live and are at home in it" (Haugeland 1998: 231).

In Haugeland's argument, meaning stops being a personal concern negotiated between individuals in a community, and becomes instead the supra-personal background for individual action: we abide in the meaningful, but at the same time, and for that very reason, it displaces us in relation to our own actions by always being there first. Despite this displacing impulse, something like Bruner's personal negotiation features in Haugeland's thought nevertheless. For if we abide in the meaningful, we need nevertheless to take responsibility for our involvement with these larger shared practices. We need what Haugeland terms "existential commitment": "Like city-building and writing, the possibility of existential commitment is part of a cultural heritage (not just a biological or 'natural' capacity). But, though and as culturally born and harboured, it is precisely a capacity for *individual* freedom: the freedom, namely, to take responsibility for the norms and skills in terms of which one copes with things" (Haugeland 1998: 2).

Interestingly, this programmatic step does not feature in the essay "Mind Embodied and Embedded," only in other texts that Haugeland wrote before and after 1995. And this is no coincidence. For if we abide in the meaningful as a property of the social world we inhabit—of "its paraphernalia and practices" (Haugeland 1998: 235) but also of its "ethos" (Haugeland 1998: 236)—then even the step to individual responsibility is a learned pattern, a step we learn by imitation as we're schooled in

the shared social processes of our moral life. Meaning, as it oscillates between the personal negotiations that feature in Bruner's model and the larger impersonal structure that we find in Haugeland, is less a theoretical solution than a demonstration of the lived problem that individuals together face as they try to unite the personal and the supra-personal in their own practice.

If the personal is hard to reconcile with the supra-personal, neither can it be easily combined with the sub-personal, as Daniel Dennett saw when he first introduced the distinction between the personal and the sub-personal during a discussion of pain in *Content and Consciousness* (1969) (Noë 2015: 219). Dennett's point is worth citing at length:

When we have said that a person has a sensation of pain, locates it and is prompted to react in a certain way, we have said all there is to say within the scope of this vocabulary. [...] If we [look for alternative modes of explanation we] must abandon the explanatory level of people and their sensations and activities and turn to the *sub-personal* level of brains and events in the nervous system. But when we abandon the personal level in a very real sense we abandon the subject matter of pains as well. [...] Abandoning the personal level of explanation is just that: abandoning the pains and not bringing them along to identify with some physical event. (Dennett 1986: 93-94)

In his later work, Dennett would try to bridge this gap with his controversial ideas of the "intentional stance" and "heterophenomenology" (Dennett 1991: 72-78; Gallagher and Zahavi 2008: 17-19) which acknowledge the level of everyday human talk, but relegate it to the status of an enabling fiction. The earlier statement is more interesting for our current purposes, since it points to the incompatibility between the different levels of explanation and their associated vocabularies. The personal level operates from inside human interaction, using the habits and tools available in day-to-day life. Like the supra-personal level, the personal level puts the action of individuals in a wider context, and studies their participation in culture (Bruner 1990: 12). Indeed, Bruner argues that our very selves "are not isolated nuclei of consciousness locked in the head but are 'distributed' interpersonally" (Bruner 1990: 138). Nevertheless, where for Hutchins's approach, or for a dynamic systems approach such as van Gelder's, the self-understanding of the individual wasn't necessary for problems to be solved or decisions to be made, analysis at the personal level investigates the practices by which human beings make sense of, and take responsibility for their actions. As Bruner

makes clear, actions on this level are not magically transparent to themselves: people can be misguided, self-deceiving, lazy or inept. But these are all problems that can be addressed on the level of interpretation and conversation in the give and take of everyday negotiations. As Dennett spelled out in his first reflection on the sub-personal, this is exactly the level that we abandon when we move to talk of brain states and neural events: we leave behind the give and take of human conversations and self-understanding, and the knowledge and wisdom that those culturally honed tools transmit from one generation to another.

To sum up what this brief visit to the original debates about situated cognition has shown us: three strands can be observed that correspond roughly to a focus on the personal, the supra-personal and the sub-personal aspect of intelligent activity. More importantly, returning to the first years of the debate reminds us of the very different ontological commitments that the three strands entail: the supra-personal's concern with wider interactions, the sub-personal's with breaking the interplay of body, brain and world into its constituent parts, the personal's with negotiations and conflicts between human actants, and with the process of taking responsibility. A good theory needs all three of these levels, as does a good practice. But they do not easily unite: my lived sense of involvement is not necessarily reconcilable with insights into the wider dynamics of which my experience is a part, or with an analysis of the sub-personal mechanisms which accompany my developing narrative about myself.

The methodological challenge is to take all three aspects into account without rushing to unite them, for the unity is likely to privilege one level of explanation over the other two. It is more helpful to live, and work, with the tensions. But how is this to be achieved? Behind the overlaying of vocabularies and explanatory commitments is what Ellen Spolsky, building on and extending an idea of Andy Clark's, calls a "representationally hungry problem" (Spolsky 2004; Clark 1997: 166-70), that is to say, an intractable knot to which cultures return repeatedly in an attempt to find a liveable if always revisable coping strategy. There is no final, neat, theoretical solution to the problem of juggling both my sense of personal engagement with my situation and a knowledge of the macro- and microcosmic forces that make my choices for me. In his preface to *The Concept of Anxiety*, Kierkegaard declared: "Each generation has its own task and need not trouble itself unduly by being everything to previous and succeeding generations" (Kierkegaard 1980: 7). So it is with the generations grappling with the problems posed by the situated nature of human

cognition, as they find not only theoretical but embodied, embedded, practical solutions to the question of how the different impulses might be sustainably, if only temporarily, combined. Precisely because the problem remains, as Ellen Spolsky and Andy Clark would call it, unruly, the solutions and creativity of the past remain instructive (Sutton 2010). There is no single mode of situated cognition. But there is a historical archive, as the eight contributors to this special issue demonstrate with their different case studies.

2. Studying Situated Cognition: Eight Case Histories

Terence Cave's "Situated Cognition: The Literary Archive" sets out the methodological importance of studying case histories. He argues that literature—a term understood in a pluralistic way to include a wide range of imaginative engagements with the human predicament from poetry to film and philosophy—has a particularly strong relation to situated cognition, insofar as cultural artefacts portray human cognitive endeavours in a rich context. There is in literature no single model of knowledge, only the different instances of each work. At the same time, the world that literary works present and engage with is underspecified. Readers and viewers are thus invited actively to contribute to the construction of the fictional world: to participate in the different models preserved in the changing and varied ecology of the literary archive. Given this multiplicity, Cave argues, cognition shouldn't be approached as a universal: human knowledge is subject to a variety of timescales from the apparent invariants of our physical environment, to the slow changes of our evolving physical constitution, to the faster moving timescales of our cultural niche and our own individual development. The literary archive offers us models of human cognitive practices that aren't all identical, and teasing out the differences between our own assumptions and habits and those of contexts both culturally and historically distinct from our own can help us understand the mechanisms and structures of our own cognitive practices.

The contributions of Renate Brosch, Naomi Rokotnitz and John Lutterbie all explore the details of the phenomenology of aesthetic experience, showing how embodied recipient, artefact and environment interact, as well as exploring ways in which cultural know-how facilitates these experiences even where it is transcended. They each explore particular constellations of the sort of rich, culturally saturated experience described in Cave's argument. Brosch's "Experiencing Narratives: Default

and Vivid Modes of Visualization” takes up the idea of the underspecification of literary experience, addressed by Cave, to set out a framework for analysing our visual response to literature. She argues that our default response to texts is scaffolded by the familiar cultural topoi that experienced readers bring to bear on texts, co-creating a sense of immersive involvement in response to the often scant information supplied by the text itself. The text’s concision facilitates the reader’s active involvement as he or she mobilizes cultural know-how. In other words, the strong and very personal sense of involvement in the text is, at the same time, supported by familiar and shared topoi. As Haugeland would put it, readers abide in the meaningful, and this fact intensifies their reading. Forms of immersion are given a heightened visibility, Brosch argues, when the text encourages a switch from attending to action to taking note of objects and details. Thus where many theorists, including Brosch herself in earlier work, have assumed this heightened visual awareness must be associated with an absence of immersive involvement and with techniques of defamiliarization, the work of the cognitive scientists reviewed by Brosch suggests that the focus on objects and details that brings heightened awareness functions precisely to the degree that it is rapid and effortless, drawing on embodied responses and salient cultural topoi. Immersion is facilitated insofar as the texts exploit the situated nature of the reading experience: drawing on acquired cultural know-how, as well as on pre-conscious embodied responses.

Like Brosch’s essay, Naomi Rokatnitz’s “Goosebumps, Shivers, Visualization, and Embodied Resonance in the Reading Experience: *The God of Small Things*” focuses on the power of our involvement with a literary text. Their two essays add to Cave’s account of situated cognition the importance of the impassioned engagement with oneself and with others that literary texts facilitate. Rokatnitz’s essay continues the analysis of pre-conscious embodied responses, showing how Arundhati Roy uses complex motifs repeated throughout the text not only to prompt visual imagery but to provoke olfactory and tactile resonance, over and above the reader’s more conscious engagement with the characters’ predicament. The result is a text which mobilizes the body’s responses, echoing at the level of form the narrative’s exploration of a bodily knowledge which both questions and critiques the policing of somatic experience by custom and prejudice and allows alternative forms of communicating. In Rokatnitz’s view, bodily responses are not all innate: attunement to one’s own as to other people’s emotional states must be trained. Nevertheless, the

forms of attentiveness learned by most children are enough to prompt the reader to adopt a participatory rather than a spectatorial relation to the text. The text itself can thus become a situation through which we engage anew, and on multiple levels, with our embedded and embodied predicament.

John Lutterbie's "*Feeling Beauty, Time and the Body in Neuroaesthetics*" uses aspects of dynamic systems theory to further emphasise the situatedness of aesthetic experience, and the fact that it unfolds in real time, rather than being a punctual moment. Taking as his point of departure Gabrielle Starr's recent reading of Bernini's sculpture of Daphne and Apollo (Starr 2013), Lutterbie returns the statue to the environment of the Villa Borghese where it is usually displayed to give an account of how the setting, solidity and physical materials of the sculpture encourage an active, mobile and developing relation, which solicits and depends on a full, embodied reaction by the viewer. This on-going corporeal process makes space for creativity and the experience of novelty by the recipient. Just as for Rokotnitz the appeal to the body facilitated a move beyond conscious self-understanding for the reader of Roy's novel, so in Lutterbie's argument, the physical setting of the sculpture, and the reactions it makes space for, underpin a particular form of creative cognition that uses and expands the cultural know-how the viewer brings to the occasion.

Brosch, Rokotnitz and Lutterbie thus all show how shared cultural know-how can be mobilized and transcended in the creative laboratory of the work of art itself, enabling forms of cognition without constraining them. Responding to literature and sculpture, as a form of learned social practice, offers a space in which a new compromise can be reached between the impassioned and immersive sense of personal engagement and the supra- and sub-personal processes that accompany and determine it. Ellen Spolsky's "*Archetypes Embodied Then and Now*" offers conceptual tools for understanding such compromises through her cognitive re-reading of Northrop Frye's concept of the archetype. She argues that while Frye rightly understood archetypes as the "recurrent patterns that build and maintain cultures," he lacked a way of explaining how these apparent universals come about. Spolsky's explanation uses the idea of a representationally hungry problem to suggest that archetypes arise where there is a recurring difficulty to which cultures return again and again in their attempts to understand and come to terms with it, drawing on, updating and re-working existing models in the process. Archetypes record in salient and gradually changing images repeated attempts to grapple with constitutive

contradictions of our evolved human predicament. The example Spolsky gives is the parallel between Renaissance paintings of the annunciation and the first two Terminator movies. In both, a sense of human helplessness is answered by the hope that humanity can be successfully united with a greater power that comes from beyond. Archetypes are universal insofar as the problems they are created to address remain insoluble. At the same time, they are culturally specific: answering to the needs of the particular culture wrestling with a problem with the cultural tools that that milieu has to hand.

Spolsky's cognitively revised account of archetypes invites an inquiry into the sorts of images and forms that have been used to make sense of the conflicting facets of intelligent human activity. What are the archetypes produced by encounters with the situated nature of cognition? One answer is the essay writer, that is to say, the topos of a thinker responding sensitively and undogmatically to cognitive occasions in the manner of Michel de Montaigne, who features as an example from the literary archive in Terence Cave's article. Another answer is the educative journey that we find in the tradition of novels about moral development that go under the rubric of the *Bildungsroman*. These novels are often characterized by an attempt meaningfully, if provisionally, to combine the conflicting personal, supra- and sub-personal aspects of an individual's moral and emotional growth. My own article, "Embodied Cognition and the Project of the *Bildungsroman*: *Wilhelm Meister's Apprenticeship* and *Daniel Deronda*," explores the multiple impulses ambivalently united in Goethe's and Eliot's novels. The article also addresses the question of how the skill of being open to the transformative experience discussed by Brosch, Rokotnitz and Lutterbie in their accounts of aesthetic immersion comes to be acquired, and asks to what degree literary texts offer a potential site for such instruction. The essay takes as its point of departure a moment in *Wilhelm Meister's Apprenticeship* that shows Goethe reflecting on the different ways in which a reading that mobilizes bodily knowledge can be learned. The novel suggests that the powerful somatic effects of our encounters with art are shaped and supported by the early sensuous and communicative interactions from which the habits of literacy develop. George Eliot's creative re-writing of Goethe's novel in *Daniel Deronda* then investigates the historical situatedness of this learning process itself, exploring ways in which our opportunities for engagement with others and with literature may already be limited in advance. Nevertheless, the novel shows characters transcending these limits to the degree they

allow themselves to confront the unexpected, and be disappointed, delighted or surprised.

The essays thus far all deal with the questions of cultural know-how, and expectations in aesthetic artefacts. Michael Sinding's "From Words to Worldview: Framing Narrative Genres" directs these questions at two foundational texts of political theory. To this end, Sinding, like Spolsky, returns to a critical engagement with the work of Northrop Frye, in this case taking his account of genre as a means of conceptualizing the cultural know-how that shapes our worldviews. The work of George Lakoff and Jonathan Haidt supplies tools for understanding the bodily and affective frames that shape how we make sense of situations and evaluate them. But Frye's model allows a more flexible integration of the different elements, combining the story and character types with an associated moral dimension. Having set out a model for the affective and moral frameworks that shape how we understand the world, Sinding turns to the founding debate of modern politics, that between Edmund Burke and Thomas Paine on the significance of the French Revolution, to show how the two authors deploy the tools of genre to present and interpret the events of 1789. What emerges is a picture of the way narrative and emotional commitments shape our understanding of historical events.

The first seven articles draw on recent research in cognitive neuroscience to elaborate a complex, situated view of the particular forms of cognition associated with different cultural experiences. Spolsky focuses in particular on the importance of the adaptation and reuse of cultural forms as different epochs search out their particular ways of making sense of representationally hungry problems. The final article, Pascal Nicklas's and Arthur Jacobs's "Rhetoric, Neurocognitive Poetics and the Aesthetics of Adaptation" sets out a methodology for an empirical investigation of the effects of adaptation by focusing in the first instance on rhetorical tropes of repetition. Their article is part of a developing current in empirical aesthetics to find ways of investigating reading and other forms of cultural interaction that respect the complexity and specificity of aesthetic experience. Rather than suggesting we work with simplified or doctored narratives, Nicklas and Jacobs propose starting with the smallest units of genuinely literary writing as part of a bigger project to develop a science of what, following Hutchins, could be called "reading in the wild."

Their contribution highlights the importance of continued empirical investigation of the mechanisms of situated cognition, even as we simultaneously

describe the wider historical concatenations that characterize individual instances from the cultural archive or explore the phenomenology of responding to, and taking responsibility for, the power and appeal of specific works. To hold in tension the different perspectives to which an engagement with the situated nature of human cognition draws attention, we can look to the forms and topoi of the cultural archive, but we can also develop new working practices which straddle the different approaches. As Noë's critique of neuroaesthetics makes clear (Noë 2015: 120-33), a focus on neural correlates can potentially exclude consideration of the temporally extended, situated encounters without which aesthetic experience cannot take place. One of the challenges of further work is to find methods that integrate the personal, supra-personal and sub-personal perspectives on cultural experience while acknowledging at the same time their lived irreconcilability.

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