Aesthetics and the Limits of the Extended Mind

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This paper seeks to establish closer connections and spur dialogue between philosophers working on 4E cognition and aestheticians. In part, the aim is to offer a critical overview of the ways 4E research might inform our understandings of the arts. Yet it is also partly to flag some potential art-specific challenges to some of the theses found within the 4E literature. I start by examining the strongest extant claims regarding art (specifically music) and active externalism, and argue that it is hard to see either how active externalism could square with our actual appreciative practices or that its explanatory value could be sufficient to pressure us to revise radically those practices. Furthermore, I argue, rejecting active externalism seems necessary to acknowledge adequately the important ways in which artistic creation often involves the application of embodied know-how or the execution of embodied skills. For this reason, I argue, embodied approaches to cognition are better positioned to complement and inform the humanistic methods traditionally employed in philosophical aesthetics and art theory. (So, too, I argue, are embedded approaches to cognition, which emphasize the use of artefacts and elements of our surrounding environment as scaffolds for cognition.) However, I conclude on a moderately sceptical note: the challenge still outstanding for these approaches is to yield new understandings of our artistic practices that have not been (and could not be) gleaned through traditional humanistic inquiry.

For all of the waves that 4E (embodied, embedded, extended, enactive) cognition has made in other parts of philosophy, there have been few sustained discussions of it in conjunction with aesthetics. Reviewing what scholarship has been published on the connection, one finds the claims at stake tend to be relatively broad and tentative—and, notably, made by philosophers whose primary specialization is outside of aesthetics. For example, Daniel Hutto claims that ‘The arrival of embodied, enactive, and extended accounts of minds … might influence and reshape our thinking about the production and appreciation of art’.1 In relation, Erik Myin and Johan Veldeman write, ‘As art production cries out for an analysis along externalist lines, and as art production is central to art appreciation—aesthetics—the latter too should be seen as essentially world-involving.’2 However, much depends on the sort of externalism one has in mind here. We need to get clear about this before we can assess some of the stronger claims starting to appear in the literature—for example, that, ‘A relocated and extended subject will inevitably lead to a different notion of art and thus of aesthetics.’3 So, too, appraising

of the relevance of 4E cognition to aesthetics requires clarity about the various claims at
stake in different 4E accounts and the extent to which they complement one another or are
incompatible.

One reason this is important is that, where philosophers have offered more substantive
discussions of the relationship between 4E cognition and aesthetics, they have focused
rather narrowly on extended approaches. The debate that stands out here, to which I will
return presently, is about music and cognitive extension. Whether this is because the
‘active externalism’ advanced by Andy Clark and David Chalmers has gained the most
widespread traction in the formulation of The Extended Mind Thesis (henceforth, EXT),
or, perhaps because it is a resolutely strong and, hence, philosophically interesting claim,
I am unsure. However, one of my aims in what follows will be to suggest that, of the
various ways in which 4E cognition might inform work in aesthetics, active externalism
may have the most obstacles to surmount.

More broadly, this paper seeks to establish closer connections and spur dialogue
between philosophers working on 4E cognition and aestheticians. In part, the aim is to
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the arts. Yet it is also partly to flag some potential art-specific challenges to some of the
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Although 4E approaches to cognition constitute a capacious research programme
of which work on cognitive extension is just one part, and although ‘second-wave’
arguments advanced in support of EXT depart from its original version in important
ways, the fact that Clark and Chalmers’s initial formulation of the thesis plays such a large
role in the recent debates about music warrants a sustained examination of it here. As
Clark summarizes the thesis, ‘[EXT] hold[s] that even quite familiar human mental states

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(e.g. states of believing that so and so) can be realized, in part, by structures and processes located outside the human head. Clark emphasizes that this claim is bolder than the more intuitive claim that external objects like pen and pencil, calculators, or Scrabble boards support cognitive processing. Rather, Clark and Chalmers claim mental states like beliefs can be constituted partly by features of the environment, when those features play the right sort of role in driving cognitive processes.

One important way Clark and Chalmers support their case is by proffering a now well-known thought experiment about two friends, Inga and Otto, who want to attend an exhibition at the MoMA in New York. Upon hearing about the exhibition, Inga remembers that the museum is on 53rd Street and, accordingly, proceeds there. Inga has evidently drawn upon a (true) belief, stored in her memory, about the museum’s location. Otto, who has Alzheimer’s disease, ‘relies on information in the environment to help structure his life’—in particular, a notebook which he carries with him at all times. Any time Otto acquires a new piece of information he writes it in the notebook so he can retrieve it when he needs. According to Clark and Chalmers, this notebook ‘plays the role usually played by biological memory’. So, when Otto needs to remember where to find the museum, he consults the notebook; he then proceeds to 53rd Street and arrives shortly after. Clark and Chalmers claim that, just like Inga, Otto made his way to the museum by drawing upon a true belief about the museum’s location. ‘For in relevant respects’, they assert, ‘the cases are entirely analogous: the notebook plays for Otto the same role that memory plays for Inga’. According to Clark and Chalmers: ‘The moral is that when it comes to belief, there is nothing sacred about skull and skin. What makes information count as a belief is the role it plays, and there is no reason why the relevant role can be played only from inside the body.’ The force of the Inga and Otto thought experiment relies upon what Clark has since called ‘the parity principle’: ‘If, as we confront some task, a part of the world functions as a process which, were it done in the head, we would have no hesitation in recognizing as part of the cognitive process, then that part of the world is (so we claim) part of the cognitive process.’

Immediately preceding Tom Cochrane’s discussion of jazz improvisation as extended cognition is a summary of EXT just like the one I have sketched here. EXT, as conceived by Clark and Chalmers, grounds Cochrane’s key claims, according to which, ‘At every level of creative decisions the musician and his instrument form a single tightly coupled system … . Thus when completing the cognitive task of choosing what exact notes to play, the instrument is part of an extended loop between the musician’s brain, the muscles in his hands or lips, and the keys of the instrument’. One can see how this argument could

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7 Ibid., 227.
8 Ibid.
9 Ibid., 228.
10 Ibid., 222. Italicized in the original.
be run in other art-making contexts: just as a musician like Coltrane is ‘coupled’ with, say, a particular instrument like a 1965 Mark VI tenor saxophone, painters are ‘coupled’ with their brushes, writers with their typewriters or pencils and journals, and so forth. Further, Cochrane claims that in addition to the cognitively extended system of musician and instrument, there is a cognitively extended system comprising musician and music.

Now, one well-known objection to this sort of claim is that it commits what is known as ‘the coupling-constitution fallacy’. According to the objection, the EXT theorist’s mistake is to confuse the coupling relationship between cognitive agent and external object for a constitutive relationship in which the external object partly constitutes a cognitive system. The idea is that constitution is not entailed by coupling, and the EXT theorist offers no additional argument for making this move. As Luke Kersten has noted, Cochrane’s argument seems guilty of just this unwarranted inference by moving ‘from the formation of a coupled musician-music system, based on observations about tight causal connection, to an extended constitutive claim about the cognitive processes involved in the integrated system’. The EXT theorist’s standard reply to this objection is that, far from being confused about the difference between coupling and constitution, EXT is arguing that the sort of coupling at stake here in fact partly constitutes the cognitive system precisely because there is reason to regard external objects like Otto’s notebook as having functional roles that are equivalent to acknowledged mental states like belief.

Yet Cochrane’s discussion lacks an analogous account of how the musician’s instrument fulfils a functional role of this sort. What Cochrane says on this score is that ‘playing the instrument cognitively extends the musician’s creation of the music’, but all he actually argues is that ‘the instrument itself helps to decide the character of each note’, that ‘it is the interaction of [the musician’s] fingers with the keys that ultimately determine what exact notes are played’, and that ‘the music presents certain information about what sounds are available, which combines with the musician’s endorsement of these possibilities to enable and enhance the cognitive task of generating musical sounds’. The trouble is that showing that the instrument and music offer certain possibilities and constraints, which partly determine the character of the musician’s sounds, hardly shows that the couplings of musician-instrument or musician-music are extended cognitive systems. Cochrane’s description of the process of musical creation is plausible enough, but his analysis of that process is not, this is because he does not specify how either the instrument or the music play a functional role that is equivalent to an acknowledged cognitive process or mental state.

Nevertheless, the supporter of EXT could insist that the burden of proof rests with the anti-extensionist and demand a non-question-begging argument for why, say, Jimi Hendrix

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16 Kersten makes a similar point in ‘Extended Music Cognition’, 1089.
and his guitar should not be thought of as constituting a single cognitive system.\textsuperscript{17} This is a helpful challenge because it flags what is specific about the context of artistic creation and appreciation. Although discoveries in cognitive science may straightforwardly require us to radically revise our current, empirically-based conception of what counts as cognitive, matters are less clear in the case of art appreciative practices, which have an essential, culturally determined, normative dimension. This is not to say that there could not be a case in which research in cognitive science pressured us to revise our art appreciative practices, but rather to note that the two contexts are not analogous and that, plausibly, the bar is higher in the context of art appreciation precisely because it is thoroughly normative. What counts as an \textit{artistic achievement} is not, like the cognitive, discoverable via scientific investigation because it is socially and culturally determined.

In art appreciation, our focus is upon \textit{embodied persons} and their creations (or performances) rather than persons-coupled-with-external-objects-in-an-extended-cognitive-system and their creations (or performances). Now Clark and Chalmers claim that the sort of ‘epistemic action’ involved in the Otto example and other cases of cognitive extension ‘demands the spread of \textit{epistemic credit}’.\textsuperscript{18} Although they do not elaborate on what they mean by ‘epistemic credit’, a plausible gloss on the idea is, as John Preston puts it, that we ‘should distribute the credit for an epistemic achievement over the whole arrangement of person-plus-environmental supports, judging that the \textit{cognitive system} in question believes, knows, and so on’.\textsuperscript{19}

I am persuaded by some of the criticisms of the idea of spreading epistemic credit in the first place.\textsuperscript{20} But I think such criticisms gain further traction if we try to imagine what spreading \textit{artistic} credit across a cognitive system would look like. We do not say, ‘Wow—how remarkable was the achievement of the cognitive system “Jimi Hendrix + his 1968 Fender Stratocaster” in its performance at Woodstock!’ Rather, we credit Hendrix-the-embodied-person with the achievement. True, we might speak of spreading artistic credit across a group of people working in collaboration—but then we are talking about \textit{collective agency} rather than distributed or extended agency. Although the 2017 Grammy Award for Best Dance/Electronic Album was awarded to group of human agents (Kraftwerk), we do not take the fact that those human agents are coupled with computers during their performances as grounds to credit a putative extended cognitive system such as Kraftwerk + computers. It is not as if the award would have been withheld if the band suddenly decided to destroy the computers on to which various beats, rhythms, progressions, and so forth are stored. As our appreciative practices currently stand, it would be nonsensical to ascribe artistic credit to a cognitive system that includes elements of the environment like guitars, saxophones, pencils, notebooks, laptops, and so forth.

\textsuperscript{17} The Hendrix example is due to a provocation from Murray Smith who acknowledges that EXT as advanced by Chalmers and Clark is stronger than what his argument requires, yet, like Cochrane and Krueger, seems tempted by it. See Murray Smith, \textit{Film, Art, and the Third Culture} (Oxford: OUP, 2017), 186.

\textsuperscript{18} Clark and Chalmers, ‘The Extended Mind’, 222.

\textsuperscript{19} John Preston, ‘The Extended Mind, the Concept of Belief, and Epistemic Credit’, in Menary (ed.), \textit{The Extended Mind}, 355–369, at 366.

\textsuperscript{20} Ibid.
Only human agents, not cognitive systems, are the kinds of things that can realize artistic achievements and be the subjects of artistic praise or criticism. At this point, it is open to the advocate of EXT to argue that the coupled system actually is the relevant agent, so one may indeed insist that artistic creation is undertaken by agents and that agents are the objects of our appreciative practices, yet the agents in the relevant sense just are those coupled systems. Here we have a putative case where a scientific discovery might pressure us to revise our appreciative practices accordingly—in other words, research in cognitive science that pressures us to revise our conception of human agency would, in turn, pressure us to revise our conception of artistic appreciation to the extent that the latter is an agent-directed activity. Why should we not conceive of human agency in a way that counts cognitively extended systems as agents? This is obviously a large and complex question, in part because it opens out into the larger debate about what constitutes human agency more broadly. One tactic the anti-extensionist could pursue here would be to appeal general arguments in support of the idea that human agency is normatively constituted. More narrowly, the anti-extensionist could argue that cognitive processing does not exist independently of a cognizer; that is, there must be some agent to be doing the cognitive processing in the first place. Either of these strategies might be rejected as question-begging unless one finds independently plausible a conception of human agency involving some sort of capacity for subjectivity, introspection, and the like. Nevertheless, if this idea is also resisted, it should be noted that there are still a number of related concepts with important explanatory power that do not easily map on to an extended cognitive system. Ronald Giere puts it well: ‘The fundamental problem with extending cognitive agency to the whole system is that the concept of cognitive agency is tightly bound up with related concepts such as that of intention, responsibility, consciousness and, in general, having a mind in what is (sometimes derisively) called the “folk psychological” sense of “mind” ’.

That folk psychological sense of mind—or more precisely, personhood—which is tacit in our art appreciative practices, would need to be accounted for by an error theory of some sort if EXT were right. For we would not say, of a cognitively extended system, that it knows how to play the blues. Could this simply be an error underpinned by a misleading folk psychological theory of mind that should be radically revised? Perhaps not, for reasons that are offered by other approaches under the 4E banner, to which I now turn.

Sometimes, it would seem, knowing how to do something is partly constituted by specific, bodily, life experiences as well as one’s subsequent, subjective reflection on those experiences. One might object here that this implausibly suggests that non-human agents cannot realize artistic achievements. I want to distance myself from this implication in one sense: obviously some animals have something like art. However, I am comfortable with the suggestion that it is implausible that such animals share our concept of art insofar as they do not have knowledge of how art has evolved and mutated through various traditions over time. The open question, I think, is whether non-human animals share with us some tacit concept of aesthetic creation or aesthetic experience, which I would deny maps onto our concept of art.


experiences. That is, some procedural knowledge essentially depends on an embodied person’s experiences, and what is relevant is not just how that knowledge functions but how it was acquired. Taking an example from *The Matrix* (dir. The Wachowski Brothers, 1999), we can imagine that Neo knows kung-fu once he is coupled with The Matrix, but does he know how to play the blues? I think not—and not because he is white, although I will come to the racial dimension of this example presently. The key issue here is that an extended cognitive system does not seem like the sort of thing that could have the embodied experiences that essentially underwrite one’s knowing how to play the blues. As Charlie Parker reportedly said, ‘If you don’t live it, it won’t come out of your horn’. Knowing how to play the blues is not just a matter of knowing scales and chord progressions (although it is partly that). It is also a matter of having had embodied experiences and then reflecting on those experiences in a way that engenders a particular phenomenology—having the blues—and the second-order desire to give musical expression to those experiences and embodied emotion.24

Of course, sometimes we also do ask the question: ‘Can white people play the blues?’25 I am not going to take a position on this question, but just want to point out that our ability to ask this question—the question’s coherence—depends upon the tacit recognition that one’s lived, bodily experiences are partly constitutive of certain kinds of fine-grained know-how. For the question is about whether someone who lacks the experience living as a person of colour in a structurally racist society could know how to perform an art-form that has its roots in African-American culture—indeed, one that originated in no small part as a response to oppression.26

Perhaps the blues has so thoroughly diffused American culture (and, perhaps, Western culture in general) that some readers will deny the force of the example. If so, then consider indigenous art. In 2018, the top prize at the Telstra National Aboriginal and Torres Strait Islander Art Awards was awarded to Gunybi Ganambarr for an astonishingly meticulous etching on a 3m x 3m aluminium board.27 According to the judges’ comments:

*Buyku* by Gunybi Ganambarr is a commanding and powerful work which illustrates the artist’s deep knowledge of culture and ceremony. Ganambarr’s command of materials and processes have resulted in a work that actively engages the viewer physically, intellectually, and emotionally. *Buyku* speaks to the coming together of the Dhalwangu clan for fish trap ceremonies and how these ceremonies unite Yolngu. The work honours Ganambarr’s

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24 A similar point is made by Kim Sterelny who writes that ‘Otto’s notebook might of course be an external cue, a prompt that allows Otto better access to his internal, embodied wants and desires. But it cannot substitute for those internal states, for these have a phenomenological, embodied component’. See Kim Sterelny, ‘Minds: Extended or Scaffolded?’, *Phenomenology and the Cognitive Sciences* 9 (2010), 465–481, at 472.


forebears, specifically his Dhalwangu mari or grandfathers, who are represented through a weave of etched forms depicting water and fish traps. Buyku speaks to the attainment of cultural knowledge over time, and the artist’s own journey, which he generously shares through his brave and exciting practice. 28

In the case of Buyku and many (perhaps most) other works of indigenous art, the relevant know-how is not simply a mental state—like belief—that is identified and individuated by its functional role. Rather, knowing how to etch in this style is a matter of having a specific cultural knowledge that is the result of lived experience in a particular culture, as descended from a particular group of elders. One cannot know how to etch in a way that honours one’s Dhalwangu forbears unless one has Dhalwangu forbears—unless one has the lived experience of being of Dhalwangu descent.

What does this mean for EXT? Consider Neo again. Imagine that he plugs into The Matrix and ostensibly acquires all sorts of procedural knowledge of different kinds of art-making. Neo now knows how, it seems, to play the violin, to dance, to paint, and to etch. Neo’s knowledge of etching would make it seem as if he could create an artwork just like Buyku. But although knowing how to etch simpliciter might be course-grained procedural knowledge that Neo could obtain by coupling with an external artefact, knowing how to etch in the tradition in which Ganambarr knows how to etch appears to be a conceptual impossibility. For his fine-grained know-how depends upon his lived experiences and his standing in the right sort of causal and historical relationship to the Dhalwangu people.

Here we can draw upon some of the well-known anti-empiricist arguments in the aesthetics literature to support this claim. Suppose that Neo’s coarse-grained knowledge of etching allows him to create a work that is physically identical to Buyku. As Arthur Danto compellingly argued with reference to an imaginary gallery of indiscernible red canvases, art objects that are physically indistinct might yet have very different meanings and other artistic properties in virtue of their different causal histories and art-historical contexts of creation. 29 So, even if Neo + The Matrix knows how to etch simpliciter in such a way that he creates an artwork that is physically identical to Buyku, what he has created is in fact a completely different object—one which is not about the same things as Buyku and which is not the same artistic achievement as Buyku. If EXT, in its functionalist incarnation, were correct, then we should be able to extend a person’s cognitive processing with an artefact like a microchip or The Matrix in such a way that allowed the coupled system to possess, in principle, any sort of knowledge at all. Just as adding information (which he has endorsed in the past) to Otto’s notebook results in him having a new belief, coupling Neo with a microchip or The Matrix should result in him having the knowledge stored in the microchip or The Matrix. Yet, while it might give him the coarse-grained procedural knowledge that permitted him to etch something that looked like Buyku, it could not give him the sort of fine-grained procedural knowledge that essentially depends upon acquiring it in a particular way, such as living within a particular culture. Whatever knowledge Neo acquired about etching that allowed him to craft his identical work, he could not possibly

artistically achieve what Ganambarr has because the procedural knowledge that makes Ganambarr’s work an artistic achievement is knowing how to etch as a descendant of Dhalwangu people and in a way that honours those forbears.

Consider one more example—a purely hypothetical, sci-fi example without any complications around the specificities of culture and ethnicity. There is some recent evidence to suggest that perfect pitch can be developed by adults. Suppose that over the course of years, Nina puts in untold hours of training and practice that results in her developing perfect pitch and, along with vocal training, acquires the ability to sing beautifully. Every singing performance she gives is an astonishing artistic achievement. Now imagine Nick, who was also a fine singer before he recently developed an auditory processing disorder. Suppose we were able to implant a microchip into Nick’s brain that not only corrects his auditory processing disorder but somehow also endows him with perfect pitch. Now, what were previously good singing performances by Nick are on par with Nina’s, thanks to the extension of his mind in a way that has given him commensurate skills of auditory perception. Are Nina’s and Nick’s artistic creations of the same stature? On the sort of plausible view of artistic creation as a kind of achievement, which I assumed above, the answer is ‘no’, precisely because they have not actually achieved the same things. Nina has honed the auditory perception skills that underpin her singing by overcoming the limitations and constraints of her embodied mind through training, practice, and perseverance. Nick was simply lucky enough to be the recipient of the miraculous microchip. In terms of their manifest properties, the two singing performances may be on a par with each other, but this belies the fact that Nina’s represents an accomplishment in a way that Nick’s does not. This kind of accomplishment, in which one overcomes natural limitations and constraints through training and practice, is commonly and standardly regarded as a good-making feature of artworks—pro tanto grounds for regarding one’s creation as an artistic achievement. Nick’s performance, however, lacks all this. In this sense, at least, there is something special about ‘skull and skin’ in the context of art making that EXT seems ill-equipped to handle.

The preceding discussion suggests that the broader problem with EXT, at least in the formulation I have been discussing, is that its dependence on functionalism actually puts it at odds with embodied accounts of cognition in certain contexts—a fact that is brought into sharp relief once we think through the implications of EXT in the artistic realm. To be clear, what I mean by functionalism in this context is, roughly, the idea that mental states and processes are defined by their functional roles. This view is manifest in various claims of Clark and Chalmers such as: ‘What makes information count as a belief is the role it plays.’ A corollary of the functional conception of mental states and processes is the idea that the details of how those states and processes are physically realized is irrelevant. It is a short step from this idea to the idea that not only are the specifics about the physical realisation of mental states and processes irrelevant, but the details about the location of the realisation of mental states and processes are also irrelevant. And as a number of commentators have observed, these functionalist premises are in tension
with claims about the mind’s embodied nature.\textsuperscript{31} As Kim Sterelny puts it, ‘The more one thinks cognition is embodied, the less one will accept functional equivalence between inner and outer.’\textsuperscript{32}

I hope that, at this point in my discussion, a picture is starting to emerge of how particular aspects of the 4E research programme might plausibly explain certain features of our artistic activities, while others will have a harder time. Although much of the discussion thus far has focused on criticisms of EXT, some of the primary objections amount to endorsements of embodied and embedded approaches to cognition. To be clear, the most serious objections to EXT’s ability to explain our practices of artistic creation and appreciation centre on the idea that EXT does not adequately capture the embodied and environmentally embedded nature of those practices. It is for this reason that I have reservations about some of the prominent extant conjunctions of 4E approaches and aesthetics.

While the recent accounts of Daniel Hutto and of Erik Myin and Johan Veldeman emphasize—correctly, on my view—the embodied and embedded nature of artistic creation and appreciation, they are also tied to forms of externalism that would appear to erode, if not directly clash with, some of the important insights of embodied and embedded approaches. Discussing Richard Shusterman’s somaesthetics research project, which has sought to emphasize the body in the sorts of ways I have suggested is necessary, Hutto declares that Shusterman’s ‘understanding of embodiment is too weak’ and ‘it also does not go far enough—quite literally’.\textsuperscript{33} According to Hutto: ‘By focusing too much on the living flesh, Shusterman’s somaesthetics account is at risk of downplaying the ways in which the production and consumption involves active engagement with objects and artifacts over time and the ways that we use our bodies and other features of the environment in such engagements.’\textsuperscript{34} Perhaps this is true. But from the need to acknowledge such ‘active engagement’, it does not follow that we must accept the sort of externalism Hutto advocates. Another example, Myin and Veldeman write: ‘Unless one holds a very naïve picture of art as merely expressing some autonomous, determined, pre-existing internal mental reality, one should acknowledge the essential role of material and other external elements in the very possibility of art.’\textsuperscript{35} This is not only a plausible claim, but likely the default assumption of most aestheticians and art historians. But contrary to what Myin and Veldeman suggest, we need not accept active externalism to get this assumption. Likewise, although the authors are correct that, ‘The pure materiality of the artwork itself, as well as the concrete specifics of the perceptual conditions, have been considered to be necessary factors in coming to properly appreciate art’, what this would seem to require is an emphasis on the embodied and embedded nature of artistic reception.\textsuperscript{36} Why or how ‘active externalism seems to be particularly well placed to do justice to the concrete material circumstances of perceiving art’, as the authors claim, is not at all clear.\textsuperscript{37}

\textsuperscript{31} See, for example, Rowlands, \textit{The New Science of Mind}, 98–101.
\textsuperscript{32} Sterelny, ‘Minds’, 472.
\textsuperscript{33} Hutto, ‘Enactive Aesthetics’, 214.
\textsuperscript{34} Ibid.
\textsuperscript{35} Myin and Veldeman, ‘Externalism, Mind, and Art’, 75.
\textsuperscript{36} Ibid., 76.
\textsuperscript{37} Ibid.
At this point, advocates of EXT are likely to suggest trying to formulate the thesis in such a way that it is not dependent upon functionalism. Notably, John Sutton has developed a proposal for defending such a version of EXT. Sutton’s case for EXT relies not on a principle of ‘parity’ but instead upon a principle of ‘complementarity’, which, he claims, characterizes ‘second-wave’ EXT in contrast to ‘first-wave’ EXT.38 As Sutton notes, Clark has himself argued for the force of ‘complementarity’, despite the fact that it has received much less attention from critics. The general thought is, in Clark’s words, that the brain ‘must learn to interface with external media in ways that maximally exploit their particular virtues’.39 Of this remark, Sutton writes: ‘With this complementarity principle, as we might call it, we return connectionism to the heart of the case for EXT. It’s just because isolated items aren’t stored atomically in the brain that our relatively vulnerable biological memories are supplemented by more stable external scaffolding. Brains like ours need media, objects, and other people to function fully as minds.’40

The difficulty with this response is that the substance of claims like Sutton’s can be accepted without also accepting the theoretical baggage of EXT. A hint is Sutton’s use of the term ‘scaffolding’, which Kim Sterelny uses to describe his alternative view ‘that equally accepts the centrality of environmental resources to human intelligence’.41 According to Sterelny’s scaffolded mind thesis (SM), ‘human cognitive capacities both depend on and have been transformed by environmental resources. Often these resources have been preserved, built or modified precisely because they enhance cognitive capacity’.42 SM is derived from work by Sterelny and others on ‘niche construction’, a process by which ‘human competences depend intimately on the environment being scaffolded to support adaptive decision making’.43 In general, niche construction models take a long view of these processes, which are evolutionarily beneficial. Paraphrasing Sterelny, agents and their descendants simultaneously adapt to the environment and modify elements of the environment in ways that are adaptively beneficial. Yet SM also offers a plausible account of the shorter term and immediate relationship between artists and their environments in the context of artistic production—relationships such as becoming acquainted with a particular instrument or other artistic tool well enough such that the tool itself becomes an integral part of artistic creation. For example, I feel confident in saying I know Stevie Ray Vaughn’s ‘Life by the Drop’ because even though I cannot write out the music or tell you the fingering for the opening lick, I can play it if I am handed a guitar. And this is a common occurrence: musicians often are not sure about a note or a chord unless they have their instruments in hand because they have memorized the song by playing it. This does

40 Sutton, ‘Exograms and Interdisciplinarity’, 205.
41 Sterelny, ‘Minds’, 466.
42 Ibid., 472.
43 Ibid., 466.
not mean, however, that the guitar, the saxophone, or the music itself are coupled with the musician in an extended cognitive system. It merely entails the less contentious SM thesis, which acknowledges the centrality of environmental resources in supporting cognition.

Interestingly, the construction of a rich, fine-grained explanatory account of such music know-how and other kinds of procedural knowledge in the arts might involve a synthesis of the insights about the embedded nature of know-how from Sterelny’s SM thesis and about the embodied nature of know-how that Sutton himself has developed in other work. In a series of papers, both individually and co-authored, Sutton has developed an account of skilled actions—from batting in cricket to playing a musical instrument—in which embodied cognition plays a central role. Challenging the view that such skilled actions are ‘mindless’ or executed at a fully automatic, sub-personal level, Wayne Christensen, John Sutton, and Doris J. F. McIlwain developed an account, termed ‘mesh’, which ‘proposes that controlled and automatic processes are closely integrated in skilled action, and that cognitive control directly influences motor execution in many cases’.44 One of the attractive features of this account is that it not only simply explains the phenomenon of knowing how to play a tune, execute a dance step, or recite lines in terms of habitual or procedural memory—in other words, by executing the very bodily actions of performance—but that it also offers an explanation of the procedural knowledge required for improvisation in the performing arts. To some extent, improvisation requires such embodied procedural memory—but it requires something further: situational awareness that allows the performer to modify her performance in ways that appropriately respond to her fellow performers under temporal pressure.

Although it is not clear to me how Sutton might offer an account that reconciles EXT and the centrality of embodied cognition in skilled experience, perhaps he would abandon the details of EXT, maintaining that its value is primarily in its capacity to ‘disrupt methodological orthodoxies’ rather than to transform our conception of the metaphysics of mind: as he and a different group of colleagues put it in a jointly authored paper, ‘significant interest is generated … by a genuine investigation of the rich coupling or embedding of individual cognition in its social and environmental situations, whether or not we also think that cognition is partly constituted by such external resources’.45 For this reason, much of Sutton’s research in this area focuses on distributed cognition and, in particular, what he calls ‘distributed memory’. Here again, his own description of the aims of this research programme is helpful because he makes clear that the plausible, substantive claims about memory are not inextricably linked to the metaphysical picture of mind offered by EXT: ‘Whether or not such remembering is actually ‘extended’, it depends heavily and perhaps in unexpected ways on the individual’s rich, dense interaction or coupling with external (for present purposes, primarily social) resources’.46 And, in fact, one of the social contexts in which Sutton explores distributed memory is an artistic context—namely, in Shakespeare’s Globe where actors had to memorize hundreds of lines for dozens of characters in dozens of plays without having access to the full scripts of any


46 Ibid., 523.
of them. Discussing theatre historian Evelyn Tribble’s application of EXT to this context, Sutton advances a claim that strikes me as entirely acceptable yet, importantly, quite distinct from EXT: ‘in the Globe, the physical architecture, artifacts, social structure, and the characteristics of the plays themselves continue to support the collective success of the company in performance’.47

Like Sutton’s discussion of embodied cognition in skilled action, this claim about the way in which cognition was embedded in The Globe strikes me as empirically plausible and as potentially offering the correct explanatory account of cognitive processes underlying our artistic practices. However, I want to close with one last reservation. Suppose that we accept something like the picture of cognition in artistic creation as it as explained by embodied and embedded accounts. It is still not clear how an explanation at that level of analysis promises to add to the understanding of those practices that is not accessible to us via traditional methods of humanistic inquiry. Sutton claims that Tribble’s account of distributed cognition in The Globe ‘demonstrates the practical value of the extended mind framework for offering new perspectives on cross-disciplinary topics of independent importance’.

Moreover, he writes, Tribble’s work offers an empirically grounded alternative account ‘to any default assumption that the overall play is controlled by a single plan in the mind of Shakespeare as a writer or Shakespeare the director, or by a single authoritative script’.49 However, these modest, plausible points hardly depend upon accepting even the more modest of 4E theses, which is readily apparent as soon as one reviews the immense literature in the traditional humanities that challenges the same assumptions.50

As Sterelny points out, The Globe example is just as well described in terms of collective activity.51 And certainly, aestheticians should acknowledge that much artistic production is indeed collective. The point is that by and large most of them already do because, as fields, aesthetics and art history have long since moved on from implausible ideas about solitary genius and the like, offering sophisticated, nuanced accounts of both singular and collective art-making.52 One may even want to speak of collective agency in some such cases, where authority and responsibility for the artwork are equally shared among multiple individual agents.53 In short, the lessons Sutton suggests we bring away from Tribble’s discussion of The Globe are lessons that could be (and have been) gleaned through traditional humanistic research; they are valuable enough lessons, but we did not need 4E cognition to learn them.

More broadly, it seems to me that, despite some of the bolder speculations I quoted at the start of this article, 4E theorists have yet to offer a convincing case for how their approaches improve upon the understandings of artistic creation and appreciation developed in the

48 Ibid., 204.
49 Ibid., 203.
52 See, for example, Paisley Livingston, Art and Intention (Oxford: OUP, 2005).
53 Ibid.
traditional humanistic disciplines like philosophical aesthetics. The situation for the 4E theorist can be stated as a dilemma: one can adopt a stronger, more radical thesis such as EXT or the weaker claims of embodied and embedded approaches. If one adopts a more radical thesis, like EXT, then the 4E theorist must shoulder a substantive burden of proof given that the thesis asks us to radically revise the normative, folk psychologically influenced, culturally and conventionally established criteria for the application of mental predicates like *knowing* in the context of artistic creation and appreciation. However, as we saw, there are good reasons for thinking that the bolder, theoretically ambitious forms of EXT rely upon functionalist assumptions that are not only in tension with the emphasis we place on embodied experience in our appreciative practices, but also with embodied accounts of mind more generally. On the other hand, if one adopts the weaker proposals advocated by embodied and embedded approaches, then the challenge faced by the 4E theorist is to demonstrate how those approaches yield *distinctive* insights about our artistic practices. Moreover, those *distinctive* insights need to be at a level of analysis—i.e., the personal—that is relevant to the kinds of research questions typically asked by aestheticians and art theorists.

That, at least, seems to be a dilemma for those philosophers who have proffered stronger speculations about the impact 4E approaches might have on aesthetics and art theory. However, I should close by saying that I need no persuading of the weaker claim that at least some of the research being done in this area is relevant to aesthetics and art theory insofar as it offers firmer empirical ground from which to ask about normative matters. Moreover, I am also moderately optimistic that collaboration between 4E cognitive science and theorists using traditional humanistic methods of analysis might be mutually informative to the extent that certain research questions might require multiple levels of analysis—or that multiple levels of analysis might yield a richer, more fine-grained, and more accurate understanding of a particular artistic practice or phenomenon.54 Yet, I hope to have shown that, to the extent that artistic creation and appreciation are embodied, embedded cultural and social practices, they represent important limits to the extended mind.55

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54 On this latter point, see Smith, *Film, Art, and the Third Culture*.
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