

Neuroaesthetics and Philosophy

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Abstract

Some philosophers even recently have been skeptical about whether science can reveal anything significant about art. Although some scientists' ventures into art theory have seemed to warrant such suspicions, including early speculative forays into neuroaesthetics, against such skepticism, the argument here is that neuroaesthetics is crucial for understanding aesthetic experience and ultimately art itself. Because certain core proposals of early versions of neuroaesthetics (e.g., the art-as-caricature thesis) seem to justify this skepticism and yet, at the same time, prove more defensible than they might initially seem, they are ideal illustrations of how neuroaesthetics at a more abstract level dovetails with the philosophy of art, and so provides a complementary, not competing perspective that can help complete, verify, and defend such philosophical theories. In particular, it is proposed that aesthetic experience involves a distinctive corticolimbic response, that such experience is therefore testable and may be found even with so-called anti-art, and that its value consists in resolution of conflict between the higher cortex and limbic system generated by the evolution of the former.

Keywords

neuroaesthetics, aesthetics, experience, art, philosophy

Introduction

Neuroaesthetics studies and provides frameworks for interpreting brain structures and functions of creative artists and receptive audiences. As characteristically part of or accompanying the production and enjoyment of artworks, aesthetic experience is one particularly rewarding type of experience in which personal and theoretical interest are understandable. This paper aims to identify the potential of neuroaesthetics to contribute to philosophically motivated investigations of art and to critically evaluate and undermine skepticism about such contributions. In particular, it is proposed that aesthetic experience involves a distinctive corticolimbic response, that such experience is therefore testable and may be found even with so-called anti-art, and that its value consists in resolution of conflict between the higher cortex and limbic system generated by the evolution of the former.

The term “neuroaesthetics” (minus the “a” and hyphenated) appears to have been coined by the neuroscientist Semir Zeki (1999). Published the very same year as Zeki's *Inner Vision* was a special issue of *The Journal of Consciousness Studies* whose target article, by the neuroscientist V. S. Ramachandran and philosopher William Hirstein (1999), fomented enough controversy to spawn two special-issue sequels. Although the field has grown and developed significantly since then (e.g., see Skov & Vartanian, 2009), the focus here will be on these earlier attempts because of their comparatively broad scope and clearer relevance to the skepticism addressed. Still, it is neuroaesthetics generally that is central here, as both these illustrative cases appear to

justify philosophical skepticism about neuroaesthetics yet reveal the potential contribution of neuroaesthetics, in some form or the other, to the philosophy of art. Such use seems consistent with Ramachandran's (2001) own assessment (p. 28) of “The Science of Art” as suggesting the form a final theory might take. The argument is that not only does skepticism about neuroaesthetics prove false, its target might yield the necessary bridge between traditional philosophy of art and a robust, insightful, truly interdisciplinary aesthetics. Art history is tangential to this direction of argument, but the history of philosophical aesthetics, of art theory in this sense, is not. This is not to say that anthropology and art history, among other areas, will not contribute to a complete theoretical picture of art (see, for example, respectively, Dissanayake, 1995; Onians, 2007). However, the focus in this article is on the particular, often divisive tension between philosophy and neuroscience in theorizing about art.

The controversy spurred by Ramachandran and Hirstein (1999) among some philosophers had a threefold cause: the authors' temerity in suggesting that theory of art might benefit from neuroscience (and might be stymied by neglecting it), comfort in making sweeping claims of perhaps uncertain scope under the heading “8 laws of aesthetic experience”

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(which became 10 laws in Ramachandran, 2003), and apparent naïveté in attempting the task without perhaps knowing enough about art. E. H. Gombrich's (2000) commentary is a single 12-line paragraph, cuttingly dismissive: "Even a fleeting visit to one of the great museums might serve to convince the authors that few of the exhibits conform to the laws of art they postulate" (p. 17). The first special issue contained understandably eager and wide-ranging objections (Baars, 1999; Gregory, 1999; Kindy, 1999; Lanier, 1999; Mangan, 1999; Martindale, 1999; Mitter, 1999; Wallen, 1999), which prompted clarifications and refinements (e.g., Ramachandran, 2001; 2003). Yet others have suggested that there remain untapped riches in the original paper. For instance, Tyler (1999) rightly observes that the principle of perceptual problem-solving (one of the 8 laws), though glossed over to the point of neglect in "The Science of Art," is perhaps the principle that might be of most interest to artists themselves; in perceptual problem-solving there is an isomorphism between the artist's process of creating the visual "puzzle" of the work and the viewer's experience of "solving" it. It is in such a spirit that this article is written.

The importance of exploring the potential of neuroaesthetics for aiding understanding of not only aesthetic experience, which is plausible enough on its face, but the nature of art, which might not be as plausible a connection, is reflected in the present state of the art of philosophical aesthetics. After Danto's (1964; 1981) landmark work on indiscernibles, which focused on what distinguishes art (e.g., Andy Warhol's *Brillo Boxes*) from perceptually indistinguishable non-art (e.g., ordinary Brillo boxes), attention shifted away from the earlier view that art is indefinable to theories purporting to give necessary and sufficient conditions for art by focusing on the *relations* between artist and artwork in the first instance and artwork and audience in the second. Although objections have since resurfaced (e.g., Gaut, 2000) to the view that it is these relations, in some form or the other, in which the essence of art is located, present theories of art proceed for the most part on this assumption. Disputes in art theory center instead on the *kinds* of relation on which art status depends: whether (a) historical, (b) institutional, or (c) functional (for "functional" read "psychological," and for "psychological" read "aesthetic"). Historical and institutional views—which define art in terms of earlier artworks and the institution of the artworld, respectively—are apparently inadequate not only for standard reasons (circularity, nominalism, etc.), but also because proponents of such views (e.g., Davies, 1991; Stecker, 1997), to handle these objections, have had to effectively abandon necessary and sufficient conditions for art by giving alternative, ad hoc accounts in problematic cases (specifically the case of first art, which lacks historical precedent and precedes the artworld itself). As importantly, appealing to art's psychological/aesthetic properties opens the door to explanations of *how* historical precedence and artworld agency occur (see Iseminger, 2004). The stakes, then, are far greater than what natural curiosity

there might be, and should be, in the "mere" neurological profile of art. If psychological/aesthetic accounts are the most promising among competing theories of art, then the contribution of neuroaesthetics will be absolutely crucial in discovering the underlying nature of aesthetic experience and in finally uncovering the nature of art itself.

The next section will outline different sources of skepticism about the potential role of neuroaesthetics in contributing significantly to the philosophy of art, showing how scientists' ventures into art theory seem to confirm these suspicions, and how philosophers themselves likewise have fallen short (shared narrowness of vision being to blame). There will follow an account of how Ramachandran and Hirstein's proposal, despite its apparent problems, dovetails elegantly, and to mutual benefit, with a certain long-standing tradition in philosophical aesthetics. It will also be argued that this blend of neuroscience and traditional aesthetics has the potential to defeat the skeptic on all three fronts (the relevance of neuroscience to art theory, the existence of aesthetic experience as such, the central importance of aesthetic experience to the philosophy of art), thus tackling the nature of art from a wide interdisciplinary stance.

Narrow Vision?

Whether expressly so or merely by implication, many philosophers are skeptical about whether neuroaesthetics has anything significant to offer theories of art or aesthetic experience (such as Carroll, 2003; Currie, 2003; Davies, 1991; Dickie, 2000; Seeley, 2006). There are three types of skepticism about the role neuroaesthetics might play in contributing anything to the philosophy of art. This section will distinguish these three forms of skepticism and show how scientists' ventures into art theory, and philosophers' ventures into science for art theory's sake, in some cases seem to confirm such skepticism. It will also argue that this perspective is rather short-sighted.

The most obvious type of skepticism relevant here stems from broad misgivings many philosophers have had about whether empirical questions or findings can have any bearing on philosophical theory: the view that philosophy is strictly an armchair discipline. Although this "resistance to facts" seems to have been overcome in the philosophy of the natural and social sciences, traditional domains in the arts and humanities—philosophy of art, saliently—have proved more resistant, probably because—the "social" in "social sciences" aside—of the suspicion that truly and distinctively cultural phenomena lie beyond the long arm of scientific reach, that scientific approaches are too low-level to reveal what is desirable to know about art and aesthetic response (Currie, 2003; Dickie, 2000; Mitter, 1999; Wallen, 1999). This seems a mild version of the unfortunate trend now popular in the humanities to consider *everything*, and not just everything social, "social." The trend is evident even when it comes to pure descriptive questions such as "What is art?"

because such questions in particular often seem tightly if not inextricably tied up with questions of value, not just psychological value but cultural meaning. Whether or not “art” has a pure descriptive sense, the banishment of science from this domain is held to be a principled one, Zeki’s neologism “neuroaesthetics” an affront, on this view, to good sense and good taste.

A second type of skepticism derives, not from the belief that science is ill-equipped or intrusive, but rather from anti-realism about aesthetic experience. Perhaps science can reveal a lot about art, perhaps not, but allowing that one should quantify over experiences (after all, one might deny that consciousness exists), aspersions have been cast on the very term “aesthetic,” because, it is argued, it fails to designate a legitimate experiential kind, as there seems to be nothing common and peculiar to aesthetic experiences (Davies, 1991; Dickie, 1964). Often marshaled against the aesthetic are various arguments to the effect that the notion of a disinterested aesthetic attitude, a peculiar aesthetic faculty, or a distinctive aesthetic kind of perception, are at best irremediably vague, at middling susceptible to standard sorts of argument-from-oddness objections, and at worst, most simply, incoherent. The usual diagnosis (though note Shusterman’s, 1997, cogent reply to such concerns) is that the very concept of the aesthetic is the culprit, the prescription to eliminate it from strict discourse about art, and the implication a fortiori that neuroaesthetics on pain of recasting is a nonstarter.

A third type of skepticism might allow scientific input into the realm of art theory, and might even include the aesthetic as a legitimate type of experience, but nonetheless takes its cue from rival perspectives on art: historicism, institutionalism, as well as antiessentialism (the view that art cannot be defined). If any of these is correct, and the first two can withstand the objections mentioned earlier, including obviation of the “explanatory reduction” briefly sketched, then neuroaesthetics will have little to say about the nature of art. Note that it could still contribute much, more narrowly, to theories of the aesthetic, in which case it would still be a worthy, if more modest, endeavor. It would be appropriate to note that historicist and institutional views of art are often motivated by a rejection of the aesthetic as a unifying, universal concept for art (see Davies, 1991, for the general concern, Brown & Dissanayake, 2009, for the neuroaesthetics-specific concern). Cases of the so-called anti-art, or antiaesthetic art, the paradigm case of which is Duchamp’s *Fountain* (a urinal pseudonymously signed and presented in an art gallery), which allegedly counts as art and flouts the aesthetic, are usually adduced to show how art and the aesthetic pull apart.

Such skepticism about the potential contribution of neuroaesthetics to the philosophy of art finds some support in certain work by scientists treading in such unfamiliar territory. Take Zeki’s (1999) *Inner Vision*, which was mentioned at the outset and in which such claims are made (the first figuratively apt, perhaps, but quite literally put) that artists

are neuroscientists (pp. 2, 10) and that *all* art aims at providing knowledge (pp. 9-10). Zeki also goes to great lengths in establishing, for instance, that without the brain area responsible for color vision (V4), one cannot appreciate the color of a painting, that without the brain area responsible for perceiving motion (MT or V5), one cannot fully appreciate kinetic artworks like mobiles. To a philosopher of art, no doubt, such elaborations come off as misguided in the first case and rather trivial (not neuroscientifically trivial but, given the neuroscience, aesthetically trivial) in the second. As will be seen, similar concerns are raised likewise by some of the assertions made by Ramachandran and Hirstein.

To forestall needless proliferation of instances, let these suffice for now, save to observe that in most cases, and this applies no less to philosophers who draw on, or simply give lip service to, scientific research, here lies an unfortunate narrowness of vision. Even where more interesting and useful work is done (in linking visual ambiguity with interpretive openness, for instance), not only is there an excess of bottom-up material, it comes off as omitting the “up.” Some top-down work, or at least top-with-an-eye-to-down work, seems necessary, as most interdisciplinary inquiry in this area, whether by scientists or philosophers, concerns chiefly visual art and the visual system, with scarcely a mention or other (nonvisual) art forms, other sense modalities, or the possibility of commonalities in aesthetic response *across* various art forms. Of course, music will excite the auditory cortex rather than the visual, but what might responses to music and responses to painting have in common, perhaps in different cortices, perhaps in common structures further down the line? Whither breadth of vision?—or breadth beyond vision? Perhaps surprisingly, in the answer to this question one begins to glimpse the greatest contribution to the philosophy of art that neuroaesthetics might make.

A Tradition’s Cutting Edge

This section will directly engage Ramachandran and Hirstein’s (1999) “The Science of Art” as an illustrative case to argue that, its apparent shortcomings aside, neuroaesthetics meshes well at an abstract level with aesthetics of a more traditional philosophical style, and so might just provide insight into not only the underlying nature of aesthetic experience but also the ultimate nature of art itself. Discussion will continue to be confined to chiefly philosophical concerns.

On the surface, despite one of the authors being a philosopher, “The Science of Art” reads like many other attempts by scientists to engage in art theory. There are the expected problematic pronouncements, such as, without qualification, that all art is beautiful (without disambiguating the beauty of the depiction from the beauty of the thing depicted)—which is suggested (Ramachandran & Hirstein, 1999) if not explicitly made—and stranger, that all art is caricature, without addressing such obvious counterexamples as, say, photorealistic

painting. The puzzling caricature principle derives from emphasis placed throughout the article on what is called the “peak shift” effect, a tendency to respond more intensely to exaggerated versions of stimuli that humans are geared, through habit or reward, to discriminate typically. If a person is discriminating rectangles from squares, say, they will tend to respond much more intensely to an elongated (thus exaggerated) rectangle. The fact that stimulus novelty generates such response stresses the importance of the internal mechanisms involved.

The peak shift effect is labeled one of the “laws of aesthetic experience,” along with perceptual grouping and binding, attention allocation, contrast extraction, perceptual problem-solving, the generic viewpoint principle, and—odd as these may seem in rounding out the list—metaphor, and symmetry (repetition/rhythm and balance are added to the slightly altered list of Ramachandran, 2003). The diversity of this list, the non-lawlike formulations of its “laws,” and their ambiguous scope, have been cause for concern, although appreciated in some cases, among philosophers of a certain mindset.

Although these more philosophical misgivings do not scratch the surface of criticisms made from other disciplines (as one may reasonably expect), the focus here will be on the more philosophically central issues. Many of the claims about which philosophers would rightly be *prima facie* skeptical can actually be given more deservedly defensible interpretations. First, the claim that all art is beautiful will strike many philosophers of art as absurd—when “beautiful” is interpreted naturalistically—because where much art depicts the beautiful, much of it also depicts the ugly, and so forth: Botticelli’s *Venus* is one thing, Goya’s *Saturn* another. Add to this that much postmodern art deliberately flouts any traditional notion of beauty (Western or Eastern), and it is clear why many philosophers will too quickly dismiss the claim that all art is beautiful. However, if art is deemed beautiful in the sense that it provokes pleasurable aesthetic response, then the claim seems much more plausible, and is not so easy to dismiss. Still, Ramachandran and Hirstein seem to prefer the more standard interpretation of “beautiful,” which remains open to this criticism except insofar as, despite their claims to universality, their proposals are meant to apply only to beautiful art in the narrower sense.

Second, the caricature principle (that all art is caricature) could be given a similarly charitable reading. Abstract art is a caricature insofar as, by definition, it is abstracted from, hence serves in that sense as a caricature of, ordinary experience and representations of it. Not so with realistic representations, however, as a photorealistic painting is certainly no caricature in the way that most political cartoons are. In fact, Ramachandran (2003) is quite explicit about realistic representation, in a snapshot, say, ruling the representation out of the artwork class. The implications for a host of realistic artworks—much artistic photography, photorealistic painting,

and so on—is distressing. It seems Ramachandran here sells his theory short, in that realistic depictions can be interpreted, and quite straightforwardly, as caricatures in some relevant sense. Take photorealistic painting. Though not a typical caricature, to be sure, a photorealistic painting is importantly different, “abstracted,” from ordinary experience in one very important way: by freezing time. In presenting a frozen timeslice of a limited perspective, the visual display in a photorealistic painting has, in a sense, made a caricature of the depicted scene, which does not really stand still (and is not really flat, either). Realism should apply as much in four dimensions as in three.

Although such an interpretation is possible, it is perhaps implausible to attribute it to the authors who, after all, sought to provoke further discussion more than settle theoretical matters outright. Even so, it is instructive to realize that “The Science of Art” might have better mileage than Ramachandran and Hirstein had hoped. Clearly, some of its provocative claims have yet to be fully appreciated (even by Ramachandran himself) for their defensibility, as has been shown, or their potential philosophical significance, as will be shown.

Two important themes emerge from the provocative discussion in “The Science of Art.” The first theme is well expressed in the article’s guiding question: “Might there be some sort of universal rule or ‘deep structure’ underlying all [aesthetic] experience? . . . What is the brain circuitry involved?” (p. 16). Not only does this question give the right breadth of perspective so desperately lacking in much work of this ilk, it indicates that certain crucial questions about the aesthetic (whether there *is* such a thing, for one) might just admit of answers that can be sought empirically, getting beyond what often appears as intuition-haggling or question-begging in the philosophy of art. (Ramachandran, 2003, seems to think that philosophy is inherently this way, and so cannot discover universal laws, much less testable ones—otherwise philosophers would simply be scientists, as though the philosophy of art were only good science or bad art history.)

The second theme, an implicit one, is an apparent commonality lurking beneath the “8 laws” that begins, when abstractly formulated, to resemble far more familiar aesthetic theory than may at first appear: in aesthetic experience (as in peak shift) there is a special, more intense response than in ordinary experience, a relationship of special reinforcement between distinct parts of the brain: the limbic system (spatially lower, evolutionarily older, more emotional) and the cortex (spatially higher, evolutionarily newer, more intellectual: Holt, 1996, 2010). This perspective helps explain the value of aesthetic experience, especially against a background commitment to the hypothesis that the explosive evolution of the neocortex resulted in the human psyche being typified by deep conflict between reason and emotion (Koestler, 1967; Simeons, 1961).

The notion of aesthetic experience as consisting in a distinctive corticolimbic relation, though suggested in “The Science of Art,” is not given much notice there, even though the idea suggests much greater universality—which the authors prize above all—than the 8 (and later 10) principles themselves. Nor is mention made that this unified view, rather than competing, in fact complements more traditional art theory, particularly a certain tradition in theorizing about aesthetic experience, a tradition that can be seen in Beardsley (1981, p. 552) acknowledging the debt of his account to that of, among others, Richards, Ogden, and Wood (1925, pp. 75-77), where aesthetic experience is viewed as a harmonious “synaesthesia” between the intellect and the emotions. These 20th-century analytic philosophers’ views find precedence in 19th-century Continental philosophy: Schiller’s (2004) notion of aesthetic experience as “equipoise” between rational and natural impulses (pp. 74-75, 90), and even Nietzsche’s (1967) idea of the “fraternal union” of Apollo and Dionysus (p. 132) can be seen as a similar view in more symbolic garb. The corticolimbic relationship suggested by “The Science of Art,” then, appears to account, even if not intended to, for how aesthetic experience, as given by such philosophical descriptions, is implemented in the brain—again, a complementary, not a competing, approach.

This complementarity with philosophy is encouraging, revealing neuroaesthetics to be far broader, and far more powerful, than it often appears and its critics suppose. Not only is there the potential for a unified theory of aesthetic experience across sense modalities here, the hypothesis of aesthetic experience having a corticolimbic signature implies the possibility of testing for such experience, even in the case of so-called anti-art, which might be found to elicit such a response *despite* the artist’s intentions. The corticolimbic signature of aesthetic experience might turn out to be some unique kind of self-reinforcing thalamocortical feedback loop. Although at this point the discussion is admittedly speculative, it should be noted that this is where new neuroaesthetic lab work should take up the slack. It should also be noted, however, that this proposal already has some intuitive plausibility, coheres with an established philosophical tradition in aesthetics, gives a direction for further empirical research (including suggestive hypotheses), and helps arm the philosopher and neuroaesthete alike against the skeptic.

Consider how this perspective on complementarity suggests replies to the various forms of skepticism outlined earlier. To the resistance to scientific intrusion in this domain, it might be observed that the scientific branch of neuroaesthetics represents, not a threat to aesthetics, but a potentially fruitful and, in a certain sense, badly needed partnership. The low-level neuroscience will provide the means to flesh out, refine, challenge, and vindicate certain accounts of aesthetic experience, introspectively plausible and art-theoretically sensitive. Without neuroaesthetics, the philosophy of art is fleshless; without philosophy, the science of art is blind.

Skepticism about aesthetic experience as such, which is usually grounded in the intuition that responses to art vary far too widely for there to be anything distinctively “aesthetic” about them, can be parried by noting three things: first, that the postulated “deep structure” of aesthetic experience would, if vindicated, unify aesthetic experience without need of surface transparency; second, that the relational/multiple faculties model already allows for intellectual and emotional content in aesthetic experience to vary as widely as possible without sacrificing a commitment to unity in the relation *between* the faculties; and third, that from the perspective of neuroaesthetics the existence of aesthetic experience as such is potentially up for grabs: but instead of just “having a look,” one goes into the lab and tests; the right sort of brain imaging (such as functional magnetic resonance imaging [fMRI]) of subjects enjoying different varieties of art should help determine whether the requisite commonalities obtain. Beyond the depth (i.e., the unavailability to consciousness) of many aspects of ordinary mental life (unconscious aspects of cognition, repressed desires, etc.), the idea is that even a lack of phenomenological similarity across different aesthetic experiences would not by itself imply a lack of subliminal commonality: the hypothesized corticolimbic signature.

Skepticism about the aesthetic approach to the philosophy of art can be handled similarly. Grant that anti-aesthetic art like Duchamp’s *Fountain* counts as art, but does not appear to satisfy aesthetic interest or reward aesthetic attention. Still, some people like *Fountain*, and perhaps the deep structure of their appreciation, in concert with a phenomenological sense of similarity (in some cases, though dissimilarity in others) is the same as that of enjoying more standard works. (Such works may unintentionally produce aesthetic experience and thus count as aesthetic despite an artist’s possibly anti-aesthetic intentions.) The suggestion is that once again the hypothesis could be tested to find out whether *Fountain really is* anti-aesthetic as Duchamp seems to have intended (though this is itself disputable), bearing in mind that first-person reports are not to be accepted unquestioned or ignored outright, but rather incorporated into a complete picture of the aesthetic situation. If *Fountain* were discovered not to produce aesthetic experience, even in people who do appreciate the work and *as they do so*, that would imply that the appreciation is not of an aesthetic kind, that perhaps Beardsley (1983) was right after all to argue that such works should be seen as curiosities rather than true art objects. Note, though, that *Fountain* might be discovered to produce aesthetic experience in certain people under the right conditions, even perhaps some who firmly believe it could never so move them.

Conclusion

Although the descriptive aspects of art, as described, extend from the armchair all the way to the lab, there is also,

undiscussed as yet, some purchase on the value of aesthetic experience, and this will help counter, albeit programmatically here, another objection to the neuroaesthetic approach. An opponent of neuroaesthetics might object that it is a purely descriptive research program that, as such, fails to account for the *value*, if not the character, of aesthetic experience: the failure of a naturalistic perspective to cross the divide between the agreeable, for which evolutionary explanations are tailor-made, and the truly beautiful, or better, the aesthetically piquant, on which such explanations seemingly must remain silent (Dutton, 2003, p. 703). Such an objection is misguided, and suggests a one-dimensional view of evolution, as if the evolved cortex could not help but find the agreeable (and whatever resembles it) agreeable, the disagreeable (and whatever resembles it) disagreeable, as if it were only things external that matter, ignoring the plausibility that, for all its advantages, cortical evolution is the very cause of many of precisely those psychological conflicts (sometimes *about* the agreeable) for which enjoying art, however transiently, is an effective, and perhaps the preeminent, means of resolution.

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