Books Forum

Neuroaesthetics: Getting rid of art and beauty

Ludovica Lumer and Semir Zeki
La bella e la bestia: Arte e neuroscienze. Laterza, Rome, 2011, €12, ISBN: 978-8842093909

Chiara Cappelletto
Neuroestetica: L'arte del cervello. Laterza, Rome, 2009, €12, ISBN: 978-8842088998

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> What is striking about neuroaesthetics is not so much the fact that it has failed to produce interesting or surprising results about art, but rather the fact that no one – not the scientists, and not the artists and art historians – seem to have minded, or even noticed.
>
> Alva Noë (2011)

Several recent articles have proclaimed that neuroaesthetics has come of age (Chaterjee, 2010) and is 'rapidly taking shape as a field of study in its own right' (Nadal and Pearce, 2011). Its practitioners, we are told,

> have recently approached the traditionally philosophical field of aesthetics aiming to characterize the neural and evolutionary foundations of our species' capacity to appreciate beauty and art. This approach […] has begun to provide some insights into the neurobiological bases of aesthetic appreciation.
>
> (Cela-Conde *et al*, 2011)

Although neuroaesthetics is mainly concerned 'with the neural underpinnings of aesthetic experience of beauty, particularly in visual art' (Di Dio and Gallese, 2009, p. 682), its aim is also to encompass literature, music, dance, theatre and cinema – all topics on which publications have already appeared.

As illustrated by the books reviewed here, and others in German, Spanish and English (Dresler, 2009; Skov and Vartanian, 2009; Martín-Aragúz, 2010), the area is moderately multilingual. Why, however, review two volumes in Italian? First, they are among the very few works on neuroaesthetics that are not edited collections. Second, they show that the field attracts attention from different quarters: Chiara Cappelletto is a philosopher at the Università degli Studi di Milano; Semir Zeki, a founder of the field, is a specialist of the primate visual brain at University College London and Ludovica Lumer works in his laboratory but also runs an art gallery. Third, they offer a contrast, explained below, that is typical of the way neuroaesthetics has been taking shape. Finally, it seemed suitable to contribute to *BioSocieties* something that, in a limited but explicit manner, protests against the exclusion of major languages of culture from globalised academia.

Neuroaesthetics is relatively diverse, but depends on a 'truth' Zeki (2002, p. 54) deems 'axiomatic', namely 'that all human activity is dictated by the organisation and laws of the brain; that, therefore, there can be no real theory of art and aesthetics unless neurobiologically based'. This axiom has driven and been sustained by active institution-building. Since 2002, neuroaesthetics conferences have taken place annually at the University of California, Berkeley; in 2005, an Italian society for neuroaesthetics baptised itself 'Semir Zeki' (www.neuroestetica.it); in 2007, the Wellcome Trust gave Zeki £1 million to establish a programme, now an Institute with seats in London and Berkeley (neuroesthetics.org); a 'platform for art and neuroscience' was established in Berlin in 2008 (www.association-of-neuroesthetics.org); in 2009, the European Science Foundation devoted one of its prestigious exploratory workshops to the field; the launching of a *Journal of Neuroesthetics* has been announced; and the Max Planck Society for the

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Advancement of Science, one of the world's most powerful research organisations, is about to establish an institute that will include neuroaesthetics (www.mpg.de/101414).

Critics have not been quiet either, and their criticisms are fairly diverse (Vidal, 2011). They boil down, however, to something painfully obvious, but that it is obviously pressing to state: neuroaesthetics has not said, and for reasons intrinsic to its methodologies and assumptions, cannot say anything relevant about art *as art*, or, more broadly, about aesthetic experience as such. The keywords here are *circularity* and *irrelevance*. We obviously need our brains to perceive artworks; however, if the same cells in the visual cortex react to a Mondrian and to a fence, then just knowing that fact does not teach anything specific about responses to Mondrian in particular or about human aesthetic experience in general.

The same can be said about the activity of brain pleasure centres, which never fail to show up in neuroaesthetic experiments. First, *circularity*: since neuroaesthetics operationally defines beauty by subjects' hedonic judgment (stimulus X is beautiful/ugly), finding something beautiful necessarily involves the centres whose activity (usually detected via functional magnetic resonance imagery) is offered as constituting the 'neural correlates' of aesthetic preference. Second, *irrelevance*: since, as far as pleasure goes, what neuroaesthetics 'discovers' also applies to hamburgers and ice cream manufacturers, it 'tells us nothing about Picasso and Cézanne that doesn't apply equally to Häagen-Dazs and McDonalds' (Hyman, 2010, p. 255).

Of course, neuropsychology can be hugely illuminating. For example, Zeki (1999) and others have studied the functional specialisation of the visual system, such that the loss of one processing system (for example, for movement or colour) entails a loss in the capacity to appreciate the corresponding aesthetic effect, whereas effects produced by other attributes remain unaffected. These are important facts, but the kind of information they provide can become the foundations of aesthetics only under two conditions: (i) aesthetics itself is redefined as a branch of sensory neuropsychology and (ii) the 'traditional philosophical' questions of aesthetics, as well as the non-*neuro* approaches they have inspired, from normative metaphysics to descriptive sociology, are judged at best misguided. Neuroaesthetics fulfils these conditions, and has recently encapsulated them by defining beauty as 'some quality in bodies that correlates with activity in the mOFC [medial orbito-frontal cortex] by the intervention of the senses' (Ishizu and Zeki, 2011, p. 7). The many objections that can be raised against such a definition could probably be summarised in Gérard Genette's (1999, p. 11) observation about the 'aesthetic relation' humans entertain with objects: 'It is not the object that makes the relation aesthetic, it is the relation that makes the object aesthetic'.

To be fair, some researchers have hinted at neuroaesthetics' dramatic lack of ecological validity, as well as at the perils involved in factoring out from aesthetic experience whatever makes it aesthetic, and from art whatever makes it art (Chaterjee, 2010; Lacey *et al*, 2011; Nadal and Pearce, 2011). Their faith, however, remains unshaken, and they keep moving in the same direction rather than realize that they might be, with great expenditure of private and public funds, rushing down a blind alley (see Bullot and Reber, in press, for a promising, though rather insubstantial alternative).

Re-Reading Contemporary Art?

Contrary to assumptions embedded in most neuroaesthetic practice, aesthetics does not concern artworks alone; art is not limited to Western art; and Western art itself is not exclusively figurative. Dealing with non-figurative, and more generally with contemporary art, is thus one of neuroaesthetics' major challenges.

The discovery of mirror neurons has opened one path towards meeting that challenge. Art historian David Freedberg and mirror neurons co-discoverer Vittorio Gallese argue that the observation of an artwork induces in spectators' brains a simulation of the action depicted or embodied in the work. Thus, Jackson Pollock's action paintings provoke 'embodied empathetic feelings' in response to the 'visible traces of the artist's creative gestures' (Freedberg and Gallese, 2007, p. 199). Even if that were true, it would teach us nothing specific about aesthetic experience, and even less about non-figurative art. With calculated effort rather than free drippings, Mark Bidlo creates *Not Pollocks* that look exactly like existing originals. It may well be that our visual system responds to Bidlos as it responds to Pollocks. That, however, merely shows the extent to which aesthetic experience begins where neuroaesthetics ends.

In *Beauty and the Beast: Art and Neurosciences*, Ludovica Lumer and Semir Zeki take up the

challenge in a different way. Their book, they say, 'is a re-reading of contemporary art in the perspective of what is known today about the human nervous system' (p. 1). Like all neuroaestheticians, they assume that 'art is a product of the brain' (p. 49) that the need for art is intrinsic to the human species, and that artists essentially are instinctive neuroscientists. On this point, they believe, contemporary artists go beyond their predecessors. Like the brain itself when engaged in complex cognitive functions, contemporary art gives up figurative representation in favour of 'a deeper expression of the sense of self', and requires the spectator 'to complete the creative process, to reconstruct, or construct, meanings' (p. 62f). In contrast to forms of art that follow conventional canons of beauty, contemporary art materializes the 'great paradox' of doing away with a recognisable notion of art in general (p. 65). It thus 'places us in front of ourselves; art itself looks at us, because it involves us in the creative act. It is art that really turns into life' (p. 67). This is as far as Lumer and Zeki go towards characterising contemporary art and towards what Zeki might mean by 'a real theory of art and aesthetics'.

But how about neuroscience? According to our authors' general thesis, to survive in a constantly changing world, our brain looks for constant properties; and it is ultimately such a quest for 'interior stability' that has 'driven the human brain towards artistic creation and has become the very protagonist of contemporary art' (p. 1). From there onwards, *Beauty and the Beast* is an accumulation of non sequiturs.

For example, Lumer and Zeki note that the mirror neuron perspective on art is only 'part of the story'. Artworks exist independently of the gestures that created them, and thus respond to the brain's 'demands for stability'. Having stated that, the authors first write that '[m]an fears the movement that inevitably leads him towards death'. They then quote a line from the main character of Samuel Beckett's *Happy Days*, 'what a curse, mobility'; note that movement is the source of all human fears and 'father of the ghosts that art seeks to fight'; and observe that art enacts the 'archetypes' of bodily gesturality and postures, which represent the 'closed form, the impossibility of being something else' (pp. 102–107). All this comes just before the book's Epilogue, which repeats the initial claims: the human nervous system has been shaped by a continuously changing surrounding world in such a way that it can extract, 'by means of art, a sort of stability out of the unstable. Stability which, as only consolation, saves us from the ineluctability of our destiny' (p. 109). *Beauty and the Beast* remains throughout at such a level of bathos and generality – with art (I suppose) being *Beauty* and humans' tragic predicament *the Beast*.

The absence of the most minimal contextual or experiential elements that would be required to say something sensible about art is aggravated by a profound lack of historical sensibility. There is no history in *Beauty and the Beast*, only one deep melting pot of (randomly?) chosen artists and periods. For example, Dante could not describe Beatrice's beauty, and Botticelli, in his illustrations for the *Divine Comedy*, did not depict it. They thereby anticipated 'the central question of all contemporary art, namely that the creative process has to be completed by the spectator' (p. 33). All other examples and commentaries are of the same calibre.

In sum, *Beauty and the Beast* does not re-read contemporary art in the light of neuroscience. On the one hand, what it says about contemporary art is at its very best superficial, and has no direct link to the neurosciences. On the other, the little it says about neuroscience is not specifically relevant for understanding contemporary art (or any art, or aesthetic experience). In short, the book manages to annihilate its own object. In that, it turns out to be representative of neuroaesthetics at large.

'Ma Bacon non è pittore per Zeki …'

In so far as neuroaesthetics intends to cast light on art, beauty and aesthetic experience, it has so far been a perfectly self-defeating endeavour. Indeed, as Chiara Cappelletto shows, it treats artworks as a physiological and behavioural test, visual arts as a primitive form of brain imagery, and beauty as the automatic result of the arrangement of parts of visual stimuli (pp. 149, 151, 152). That is why, though surprising at first, the subtitle of her book, 'the art of the brain', actually makes ironic sense.

Sober, cultivated and clear-sighted, conceptually refined and historically informed, well written and carefully organized, Cappelletto's *Neuroaesthetics* stands in stark contrast to *Beauty and the Beast*. Generously, the author suggests that neuroscience could underline the importance of the emotions and the body for aesthetic experience, and positively complexify traditional questions. Yet she also demonstrates the extent to which neuroaesthetics as we know it ultimately gets rid of art and beauty as objects of both phenomenological experience and intellectual enquiry.

Cappelletto rightly emphasises that the neural turn in aesthetics comprises three axes, and devotes one

chapter to each: art neurocriticism, neuroarthistory, and neuroaesthetics proper. The first axis is especially interested in neuropsychopathology, the expression of symptoms in art, retrospective diagnoses and artists' expression of their illness. In turn, neuroarthistory claims to furnish the clue to the causes, functions and forms of art since its distant birth. In its most extravagant version (Onians, 2008), it invokes neuronal plasticity to affirm that the animals painted in the Chauvet Cave look strikingly naturalistic (a questionable claim) because palaeolithic humans looked at them intently; that the neural networks of a contemporary Australian bark painter are particularly sensitive to parallel lines because, as a child, he admired his father's expertise in using fibres to make fish traps, and was further exposed to parallel lines through op art (optical art); and that a similar process explains why Florentine Renaissance artists made more use of lines, while Venetians, more use of colour. Cappelletto points out that such an approach ends up substituting a 'history of the brain' for the history of art, and dissolving the past in a permanent, homogenous and homogenising contemporaneity (pp. 99, 90). In words less gentle: just as there is no aesthetics in neuro*aesthetics*, there is no history in neuroart*history*.

Cappelletto identifies in neuroaesthetics proper two main orientations. One concerns vision and the preferences and criteria that structure the visual world 'considered as a self-sufficient phenomenon' (p. 49); the other deals with the exchange between the perceiving subject and the perceived world. To the second orientation belongs a much discussed article in which high-profile neuroscientist Vilayanur S. Ramachandran and philosopher William Hirstein proposed that human artistic experience obeys eight universals or 'laws', which have evolutionary value and which artists 'either consciously or unconsciously deploy […] to titillate the visual areas of the brain' (Ramachandran and Hirstein, 1999, p. 17): (i) the peak shift effect (a rat that learns to discriminate a square from a rectangle will also respond more frequently to a rectangle longer and narrower than the original); (ii) isolation of features (a sketched portrait., may be more effective than a detailed one); (iii) grouping (as when an image emerges after we look for a while at apparently unrelated dots); (iv) contrast (that attracts attention); (v) symmetry; (vi) the generic viewpoint (our visual system 'abhors interpretations which rely on a unique vantage point', p. 30); (vii) perceptual problem solving (a puzzle image is more alluring than an obvious one); and (viii) art as metaphor. In spite of its 'perceptual essentialism' (p. 71), Cappelletto regards sympathetically the authors' attempt to solve the very ancient problem of identifying universal aesthetic norms and contrasts it on several points with Zeki's approach.

Contrary to their focus on the 'fruitive response', which in Cappelletto's view leaves room for specifically aesthetic processes, Zeki seems to her closer to theories about the judgment of taste (p. 79). However, as Cappelletto shows in her discussion of this author (pp. 49–69), neuroaesthetics *à la* Zeki equates aesthetic experience with the brain's reaction to distinct and anonymous visual stimuli. It thereby eliminates from artworks the cultural, historical and phenomenological ingredients that are constitutive of their being artworks instead of something else. Art, as topic of a possible discourse on beauty or as involved in aesthetic experience, literally disappears inside the brain. Brain scans become the foundation of aesthetic judgment, and replace the experiencing subject. Hence,

> [a] painting by Francis Bacon may be executed in a painterly style and have great artistic merit but may not qualify as beautiful to a subject, because the experience of viewing it does not correlate with activity in his or her mOFC [medial orbito-frontal cortex].
>
> (Ishizu and Zeki, 2011, p. 8f)

Fortunately, those who find beauty in Bacon's canvases don't need to listen. Such is the extent to which, as Cappelletto notes (p. 63), 'Bacon is not a painter for Zeki'.

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Art come to life: The specificity and significance of bioart

Robert Mitchell
Bioart and the Vitality of Media. University of Washington Press, Seattle, 2010,
$60, ISBN 978-0295990071 (hardback)
$30, ISBN 978-0295990088 (paperback).

George Gessert
Green Light; Toward and Art of Evolution.
The MIT Press, Cambridge, MA, 2010,
$12.95/£9.95, ISBN 0262014149 (paper back)
$24.95/£17.95, ISBN 978-0262014144 (hard cover).

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The last decade has seen a boom in the production of new forms of art based on biotechnology, including the works of Eduardo Kac, Marta de Menezes, Critical Art Ensemble, SymbioticA, Adam Zaretsky, Orlan and Stelarc. Spectators face a real anomaly: with its use of living tissues and organisms, bioart seems to live up to the ultimate goal of any art work – to 'come to life' – yet at the same time, these works may appear to be mere show cases of science and technology. Scholars of Anthropology, Cultural Studies, Science and Technology Studies and other fields have critically discussed works of bioart, and bioartists themselves have also, from the beginning, joined in the discussion. The most notable publications so far are Eugene Thacker's *Biomedia* (2004), Beatriz da Costa and Kavita Philip's edited volume *Tactical Biopolitics: Art, Activism and Technoscience* (2008) and Eduardo Kac's edited volume *Signs of Life: Bio Art and Beyond* (2007). Two recent books – one by Robert Mitchell (Associate Professor at Duke University's English department), the other by American bioartist George Gessert – contribute hugely to these debates by asking in a more thorough-going way *What is the specificity of bioart, and why is it significant?* – as a form of art and as a form of thinking about life. Both studies show that bioart, by staging a confrontation between art, science, industry, sociality and biology, not only foregrounds the degree to which these fields of reality have become entangled, but also pushes for a more experimental attitude toward life – a vitalistic politics and esthetics.

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