

The Artist's Brain at Work

What's going on in the artist's brain during the creation of a work of art?¹ Before we can even begin to answer this question, we must recognise that it contains a hidden normative dimension. It's obvious that we aren't interested in every neural episode that occurs during the creative process, but only those that are somehow *relevant* to this process. The threshold of relevance may extend deep below the threshold of consciousness, encompassing nuanced emotional responses and faint traces of memory of which the artist is unaware, but it can't include everything. For instance, even if one acknowledges the importance of synaesthetic effects in the composition of visual works, this import only makes sense if it's limited to specific connections between the visual and other sensory modalities, e.g., alignments of colours and temperatures, shapes and sounds, etc., no matter how minimal the intensity of these connections. More generally, this notion of relevance makes no sense unless we understand the creative process as resulting in a *genuine* work of art, or, at the very least, as aiming at such a work. If nothing else, we are entirely uninterested in the brains of anyone trying to pass something off as art, however fascinating they might be in other respects. Herein lies the question's normative supposition.

Of course, this opens us up onto a much more difficult and controversial question: What is a genuine work of art? Or perhaps, even, what is the purpose of art? Giving anything resembling an adequate answer to this question would involve more than just an account of the institutional reality of *contemporary art*. It would require addressing the historical process of self-definition through which art got where it is now, tracing the various moments of its self-imposed split from *craft*: as propaganda, decoration, or entertainment, and examining the gradual reinforcement then sudden collapse of the barriers between *mediums*: the dialectic of concrete figure and abstract form in painting and sculpture, the subsequent rise of performance and installation, and the eventual emergence of the exhibition as its own medium under the banner of 'relational aesthetics'.² It would also mean exploring its tumultuous relationship with literature, music, drama, cinema, and other institutionalised practices that covet the title of *arts*. I will have something to say about parts of this history, and what it tells us about the nature of art, but a truly comprehensive answer to the difficult question is going to have to wait for another time.

Nevertheless, in looking for some purpose of the art work, from which to work backwards into the

1 This paper grew out of a presentation given at 'Das Träumen', an event at the Baltic Gallery in Gateshead organised by NEUSCHLOSS in May 2015. The event was thematically organised around this question, precisely because it was spatially situated around Jason Rhoades's 'The Creation Myth', an elaborate model of the artist's mind and creative process. The event is documented in *The Place of Dead Rhoades* (IMT Press, 2015).

2 Cf. Nicholas Bourriaud, *Relational Aesthetics* (Les Presse du Reel, 1998).

artist's brain, sheer symmetry invites us to consider the work's effect, not simply on the eye, but on the brain of the *beholder*. If anything, this concern with the *mind* of the beholder is a more classical topic in aesthetics and philosophy of art, which has been readily absorbed by the discourses of the *brain* and transformed into what is now called *neuroaesthetics*.³ As much as this new discipline has to tell us about the peculiarities of different modes of sensory processing and their implications for the corresponding modes of composition – such as the connection between supernormal stimulus in visual pattern recognition and caricature in painting – we must avoid being drawn any deeper into its details than we are with those of art history. What we must focus on is the ideal relationship between the *production* and *consumption* of the art work, which is to say, on the *circuit* that the genuine work forms between the artist and the beholder, from brain to brain.

Aesthetics and Semantics

Leaving the language of brains to one side for the moment, there are two opposing ways of understanding the relation between artist and beholder that have dominated thinking about art since the middle of the last century. I'll call these the *aesthetic model* and the *semantic model*. The central difference between these two models lies on the side of consumption, in the effect that the work is supposed to have upon the beholder: in the aesthetic model, the work is supposed to *stimulate* a sensory or emotional response, whereas in the semantic model, the work is supposed to *communicate* a message of some kind. The consequence of this is a difference on the side of production, in the nature of the artist's creative activity: in the aesthetic model, the artist's mind is focused on the *design of an effective form*, whereas in the semantic model, the artist's mind is focused on the *articulation of a significant content*.

It's important to understand that these general positions hide a great deal of potential variation, with many otherwise opposed theories falling on the same side of the divide. The aesthetic model includes the perennial view of aesthetic taste as an immediate source of sensory pleasure, alongside the formalist concern with the technicalities of aesthetic composition, and the myriad champions of intensities of feeling beyond mere pleasure, from sublime awe to visceral disgust. The semantic model includes the traditional view of artistic value as an immediate source of religious, moral, or even political understanding, alongside the anti-formalist concern with the artist's subjective expression, and the originators, defenders, and inheritors of the tradition of conceptual art.

3 Cf. Anjan Chatterjee, 'Neuroaesthetics: A Coming of Age Story' in *The Journal of Cognitive Neuroscience*, 2011 Jan, 23(1):53-62; and *The Aesthetic Brain: How We Evolved to Desire Beauty and Enjoy Art* (Oxford University Press, 2015).

It's equally important to understand that most variants of these positions do not deny that art can both stimulate and communicate, but rather that they subordinate one (as means) to the other (as end). For example, the Catholic Church commissioned aesthetically skilled painters to communicate religious messages, precisely because the rhetorical effectiveness of these messages depended upon the power of their compositions to stimulate sensory and emotional responses. The converse might be said for certain cases of shock art and kitsch, in which the work is made to communicate a message for emotive effect, such as a frisson produced by breaking taboo, or a nostalgia induced by invoking cliché. We can see these modes of subordination as ways of configuring the relation between *form* and *content*, and although they may not account for every possible configuration to be found in the realm of genuine art, they do allow advocates of each model to explain many of their opponent's preferred examples in their own terms.

Finally, it's important to see that this focus on either form or content doesn't prevent either model from incorporating a corresponding concern with *matter*. It's all too easy to explain the design of form as isolated from the matter it's *imposed* on (excessive hylomorphism), or the articulation of content as independent of the medium in which it's *expressed* (excessive idealism). In each case, the temptation is to see the essence of the art work, be it form or content, as an *idea* contained in the artist's mind, and its matter or medium as something inessential, which contributes nothing to the idea but its *realisation*. However, it's entirely possible for either model to treat the matter upon which the artist works as presenting positive, productive constraints upon the process of creation, and in doing so to replace the image of a determinate idea, fixed in the mind, with that of a plastic pattern, embroiled in the interactions between the brain and its environment.

Critique

Despite these qualifications, I think that both models face intractable difficulties. Again, I can't present a comprehensive account, but I address a single, crucial problem in each case. It is by addressing these problems that we will find a superior model of the relationship between artist, work, and beholder, and uncover a path leading back into the artist's brain.

The crucial problem with the aesthetic model is that it ultimately fails to distinguish art from craft, differentiating it from decoration, entertainment, and propaganda only by means of the types sensation and emotion it aims to induce, but for which it has no principled criterion. As articulated by figures such as Joseph Kosuth and Arthur Danto, it fails precisely insofar as it's unable to incorporate those cases of *nakedly conceptual* art that effectively enacted art's secession from craft,

such as Duchamp's 'Fountain' and Warhol's Brillo boxes.⁴ Whatever minimal aesthetic character these possessed was entirely insufficient to distinguish them as works of art, and their acceptance as art thus demands that we recognise a dimension of art orthogonal to sensation and feeling. Of course, for Kosuth and Danto this dimension is *meaning*, and they take it to define art, thereby subordinating aesthetics to semantics.

The corresponding problem with the semantic model is that it ultimately fails to distinguish art from other forms of communication, not just from poetry and literature, but equally from journalism and philosophy. Art refuses any constraints on expression, either on the topics it can address, or the types of message it can convey, and this makes it impossible to distinguish art from other forms of communication on the basis of its content. Moreover, the very same gestures that free it from craft eventually dissolve the barriers between mediums that might have distinguished it on the basis of its form. As explained by figures such as Susan Sontag and Gilles Deleuze, what comes to define art in the absence of aesthetic forms is not so much the contents communicated by the work but the practices of *interpretation* through which they are retrieved, practices which, for all their theoretical armaments, are essentially distinguished by the particular historical community to which they belong.⁵ Nevertheless, their proposed alternatives – erotics against hermeneutics, and composition against communication – return us directly to the aesthetic model already considered.

Consolidation

We now have some sense of the *dialectical impasse* that the aesthetic and semantic models are caught up in. The only way to dissolve this impasse, and to work our way towards a properly synthetic position, is to explore the common assumptions about the mind of the beholder upon which both models are built. The most important of these is the received distinction between *sensibility* and *intellect*, which continues to organise the dialectic of aesthetics and semantics long after it has been complicated by both philosophy and psychology.⁶

There are three main oppositions that constitute this distinction: sensibility is understood as *passive*, as supplying the *intuitive matter* of thought, and as responsible for *non-cognitive effects* such as feelings, whereas the intellect is understood as *active*, as supplying the *conceptual form* of thought,

4 Cf. Joseph Kosuth, 'Art After Philosophy' in *Studio International* (October, 1969) and Arthur Danto, *The Abuse of Beauty* (Open Court, 2003).

5 Cf. Susan Sontag, 'Against Interpretation' in *Against Interpretation and Other Essays* (Farrar, Strauss, and Giroux, 1961); Gilles Deleuze and Felix Guattari, 'Percept, Affect, Concept' in *What is Philosophy?* (Verso Books, 1994).

6 The crucial source from which this distinction springs is Immanuel Kant's transcendental psychology, developed in his *Critique of Pure Reason* (Cambridge University Press, 1998) and introduced into aesthetics in his *Critique of the Power of Judgment* (Cambridge University Press, 2002).

and as responsible for *cognitive products* such as beliefs. The underlying idea organising these oppositions is that cognition is essentially *discursive*, meaning that conceptual understanding is essentially modelled on linguistic competence. This is not an entirely terrible idea. The significance of language is that it provides us with a *general capacity* to represent the features of our environment that outstrips the *specific capacities* to simulate certain features of our environment made available by our senses. Language is extensible, it allows us to think and talk about electrons, capitalism, and justice, while our sensory capacities are limited to the range of environmental stimuli they evolved for.

The problem with the discursive account of cognition is that it gives language a monopoly, covering over the crucial cognitive activities occurring beneath the linguistic level. The philosophical tradition mitigated this to some extent by appealing to the *imagination* – understood as a more active faculty of simulation that mediates between sensibility and intellect – but this remains little more than a place holder for the specific cognitive capacities upon which our more general, discursive understanding depends.⁷ It's here that the study of the brain comes to the fore, revealing as it does the various neural mechanisms involved in processing and integrating our sensations into a map of our environment, and the specific competencies that they enable, from motion tracking to facial recognition.

However, the crucial innovation in all this is the description of the brain as an *information processing system*, to which these various mechanisms belong as subsystems, processing certain sorts of sensory input and contributing towards certain sorts of behavioural output. This is significant because the language of information bridges the gap between sensibility and intellect, and thereby provides a common framework in which to address aesthetic and semantic issues. In essence, we can reframe the opposition between the form and content of art as a distinction between two types of content: the information processed by various specialised cognitive subsystems, and the information processed at the more general discursive level. This lets us treat meaning as information, even though not all information is meaningful.⁸

The Cognitive Role of Art

Already, this suggests a rough picture of the circuit between artist and beholder as a flow of information, but as yet it tells us nothing about what distinguishes this from any other flow, be it the

⁷ Again, Kant's work is the source of this idea.

⁸ A more detailed version of this story is told in my paper 'The Reformatting of *Homo Sapiens*' forthcoming in *The Inhuman* (MERVE Verlag, 2016).

emotional information transmitted by a facial expression, or the *semantic information* communicated by text message. If we are going to provide a genuine alternative to the aesthetic and semantic models, we can't distinguish the information flow the art work instigates by limiting it to one type of information, which means that we must locate an effect that genuine art has upon the beholder that isn't restricted to a given type of information processing.

It's at this point that I can't avoid making some positive claims about the purpose of art. I've already said a few things about the historical process of art's self-definition in examining the dialectic between aesthetics and semantics, but it's obvious that I don't think either side of the debate captures the important lessons of the passage from modern to contemporary art. The truth in the aesthetic model lies in its fidelity to *stimulation*, and the truth in the semantic model lies in its fidelity to *cognition*. The error of the aesthetic model is its focus on the *non-cognitive* dimension of stimulation, and the error of the semantic model is its focus on the *communicative* dimension of cognition. The simple truth about the purpose of art that has been revealed by the history of art's struggle to define itself is the minimal condition of contemporary art: *that it make us think*.

Put simply, my positive claim is that the purpose of art is *cognitive stimulation*.⁹ To explain this properly requires a further distinction between *cognitive process* and *cognitive product*, or between the information processing subsystem that a given work activates and its results. In those examples favoured by the aesthetic model, the art work aims to stimulate our non-discursive information processing capacities, elevating their exercise by testing their limits, disrupting them, or simply pushing them beyond their everyday use. Colour discrimination, visual pattern recognition, emotional intelligence, etc., are all subject to stimulation in their own ways, the point being not to produce any particular understanding of their object, but to exercise them for their own sake. In those examples favoured by the semantic model, the art work aims to stimulate our discursive information processing capacities, inviting us to explore conceptual connections, resolve theoretical tensions, or indeed juxtapose interpretations, without demanding that we arrive at any particular conclusion. It's entirely possible for art to stimulate our communicative capacities for purposes other than communication, so that its success doesn't depend on whether we interpret it in the right way, but on whether the call to interpretation *inspires* us.

Inspiration, Invitation, and Exploration

This idea of cognitive stimulation, or inspiration, is the informational thread we must follow from

⁹ This idea is, in outline, a development of Kant's aesthetics that identifies the common denominator of his accounts of the beautiful and the sublime (cf. *Critique of the Power of Judgment*).

the brain of the beholder to the brain of the artist. What is going on in the artist's brain if not the design of an *effective stimulus*, or the articulation of an *interesting thought*? Well, there's a sense in which these are perfectly adequate descriptions of what is going on in an artist's brain when they compose a cognitively stimulating work. On the one hand, although art is more than craft, it almost always involves crafting, working its materials to specific effect. If we acknowledge that art has a purpose, then we must also acknowledge that it's possible to *design* works to meet this purpose. On the other hand, although art does not aim at a particular cognitive product, its materials invariably include established cognitive forms, using determinate abstractions, invoking particular concepts, and representing specific states of affairs. If we aim to understand art in terms of information processing, then we must be willing to explain how artists *articulate* this information as form and content. Nevertheless, there remains something more to the creative process that these descriptions fail to capture, a connection between the artist's own inspiration in creating and the inspiration the work induces in its audience. If there is anything that characterises the information flow proper to art, it's this transmission of inspiration.

Perhaps the best way to approach this is via an anecdotal observation: for all the emphasis placed on research in contemporary art practice, artists generally prefer initiating lines of thought to completing them. This is often reflected in artists' descriptions of their work, where we are told that they set out to *explore* a certain theme – e.g., the space of exhibition, the agency of things, or the history of a community – but are never quite given a finished *map* of the terrain explored. It's important to emphasise that there's nothing wrong with this. If an artist's investigations were to produce important theoretical results – e.g., mathematical theorems, philosophical concepts, or political principles – then they would be better off communicating them in a book than encoding them in a work of art. The artwork is less a determinate thesis than an *invitation* to think along certain lines. The question is, what does this involve?

Crucially, any such invitation presupposes a common set of cognitive capacities, shared between artist and audience.¹⁰ The precise extent and nature of this commonality varies depending on the sorts of information processing that are involved. For instance, as I've already hinted, portraiture is predicated on the existence of specialised cognitive subsystems for facial recognition and discrimination of associated emotional states that are more or less hard wired into our common neural architecture, even if their exact parameters and effectiveness vary from individual to individual.¹¹ By contrast, though conceptual art is predicated upon the discursive capacities I've

¹⁰ This is an important aspect of what Kant called the *sensus communis*.

¹¹ See B.J. Balas and P. Sinha's 'Portraits and Perception: Configural Information in Creating and Recognizing Face Images' (*Spatial Vision*, 2007; 21(1-2): 119-35) for an empirical investigation of relationship between capacities for

suggested are characteristic of conceptual thought in general, different works will appeal to different conceptual competencies – e.g., grasp of concepts from geometry, social theory, or even art criticism itself – whose acquisition depends upon various forms of adaptation, socialisation, and education.¹² There are many ways in which our abilities to process perceptual and semantic information can diverge, but we constitute an audience to which art can be addressed only when our capacities converge in some way.

This network of overlapping similarities in information processing suggests an alternative metaphor through which to frame these issues: a shared *cognitive landscape*, or an overarching space of possible cognition whose different regions, from the familiar terrain of facial feature mapping to the wild fringes of higher dimensional geometry, are subtended by convergences in our capacities to think the thoughts they comprise. Only those with the right cognitive capabilities can enter a given region of the landscape, and even then, only some of them ever will. This gives a new sense to the artistic language mentioned above: we can see the artist as *exploring* our shared cognitive landscape – uncovering regions within and navigating paths through the immense space of possible information processing states characteristic of our collective cognitive architecture. This in turn suggests a way of understanding the idea of invitation: we can see the artwork as less a map than a *point of entry* into the cognitive landscape – a site from which others can set out to think on their own, not so that they can reach the same conclusions as the artist or one another, if any present themselves, but so they have the opportunity to explore the exercise of their own cognitive powers in certain loosely delimited ways.

Inside the Artist's Brain

This spatial metaphor will no doubt break down if pushed too far, but it gives us better purchase on the normative dimension of our original question: which neural processes are relevant to the creation of a genuine work of art?

As I suggested earlier, this question presupposes a minimal degree of *sincerity* on the part of the artist – we are not interested in the cognitive processes involved in passing something off as an artwork. However, although we have recognised that, insofar as art has a purpose, it's possible for artists to consciously aim at this purpose, we should reject the idea that sincerity requires such consciousness. It must be possible for an artist to create a genuine artwork without any *explicit*

facial recognition and techniques in portraiture.

¹² See Mark Wilson's *Wandering Significance* (Oxford University Press, 2006) for a detailed study of the complex social underpinnings of conceptual competence.

theoretical understanding of what it means to do so, and this implies that sincerity can be *implicit* in their practical understanding of the act of creation. The cognitive similarities between artist and audience presupposed by the landscape metaphor provide a way of accounting for this: an artist requires no theoretical grasp of their audience's cognitive capacities, they only require the ability to exploit the similarities between them – sincerity is implicit in the fact that they use what inspires them to inspire others.

Given this, it would seem obvious that the aspects of the artist's brain we are interested in – those relevant to the creative process – are principally those information processing subsystems that their work aims to stimulate in their audience: facial recognition in portrait painting, object re-identification and event tracking in cinematography, discursive reasoning in conceptual art, or some complex of such faculties in post-medium compositions. However, this will equally seem trivial if it's not qualified.

On the one hand, we should recognise that divergences between the artist's and audience's cognitive systems can play a productive role in the composition of stimulating works. There are many cases of synaesthetic, partially sighted, and even blind painters whose peculiar abilities to process visual, tactile, and related data provide them with unique perspectives on the forms of visual information that stimulate 'normal' perceptual subsystems, insofar as they share some basic functional architecture.¹³ The phenomenon of neuroplasticity reinforces this point, ensuring as it does that even such 'normal' cognitive functions can be realised by different neurological structures.¹⁴ This potential for multiple realisation only becomes more pronounced as we move along the spectrum from innate to acquired capacities. It's reasonable to expect that the extensibility of linguistic function underlying the representational generality of discursive cognition permits significant neuroanatomical divergences, and that these can play a similarly productive role in conceptual art.

On the other, we shouldn't expect the artist's more or less *active* use of these cognitive capacities – extending beyond simple introspection to incorporate myriad forms of practical experimentation – to simply mirror the more or less *passive* excitation of the same capacities in their audience. If we push the convergence between artist and audience too far we risk collapsing back into the semantic model, the *transmission* of inspiration reverting to the *communication* of a determinate content indexed by a common cognitive result. The artist's inspiration doesn't merely prefigure that of their

13 Cf. Cretien van Campen, *The Hidden Sense: Synaesthesia in Art and Science* (MIT Press, 2010) and John M. Kennedy, *Drawing and the Blind: Pictures to Touch* (Yale University Press, 1993).

14 Cf. Dominick M. Maino, 'Neuroplasticity: Teaching an Old Brain New Tricks' in *Review of Optometry*, January 2009.

audience. The audience is free to let the cognitive processes begun by a stimulus take their course, but the artist must arrest, control, or even reverse these processes, recovering, modulating, and capturing the images, themes, and other information that send and maintain them in motion. It's one thing to seek one's own inspiration, and another to *capture* that inspiration in a way that can be shared with others. In attending to their own cognitive processes in this way the artist effectively, if unconsciously, uses their own brain as a window into the brains of their audience.