The Art of the Mind:

Towards Cognitive Aesthetics

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Abstract

There is growing evidence provided by the modern research in cognitive science on brain/mind forms of functioning that does not speak in favor of the computer metaphor. It amounts to the conviction that what we know is to relatively small extent determined by external stimuli, that processes involved are neither deterministic nor linear, and consequently that they cannot be adequately represented by computational operations. The cognitive, and the mental in general, are heavily fabricated by the *self-generating processes* of the brain/mind itself that are best characterized by circularity and chaos. The potentiality created in such a way is also capable of aesthetic worldmaking. Taking this into account supports our belief that the *how* of the 'know how' bears essential relevance for cognition and creativity. An aesthetic dimension should be understood as a part of it.

The contribution aims at examining the place and relevance of the aesthetic in the world of cognition, and in doing so tries a bridge between philosophy of mind and philosophy of art.

Introduction

According to a Whiteheadean naturalist 'nature is a dull affair, soundless, scentless, colorless; merely the hurrying of material, endlessly, meaninglessly'.[1] The view has become exemplary of the mature hard scientific conception of the physical reality, and has been confirmed by modern cognitive science: there are neither colors nor smells in the external world, no touch and feeling separate from the human cognitive agent. Currently we have no alternative scientific evidence by which we could dispel such an unattractive and boring naturalistic picture of the world, and replace it with a more 'colorful' one (since, though the sense of taste does play a role in scientific reasoning, it alone should not decide on the merit of theories by any means); however, what we can do is trace the emergence of the 'colorful' world from the neutral, human-free physical reality.

In other words, the true theoretical challenge is not the way of revising the aesthetically unattractive, colorless and scentless picture of nature, but the way of accounting for nature as we know it, full of colors, sounds and odors, knowing exactly that there are no physical traits of the same in the physical world.

The fact that the empirical, considered by the philosophy of science to be the 'bottom rock' of scientific inquiry for too long a time, is, after all, (or rather, after extensive research in the past

decades) something that is not rooted in the so-called external reality is a monumental philosophical premise that can not possibly be discussed here; a somewhat more feasible aim could be to focus on some basic mental mechanisms, and see what consequences this very lesson has for the comprehension of our mental world and its cognitive labor.

There is growing evidence, provided by modern research in cognitive science on the brain/mind forms of functioning, that does not speak in favor of the computer metaphor. It amounts to the conviction that what we know is determined by external 'input' to a relatively small extent, and is not the outcome of the dominantly algorithmic-like mental processes. The cognitive and the mental in general are heavily fabricated by the self-generating processes of the brain/mind themselves. If this is the case, then we have solid grounds for the assumption that the 'how' of the know-how bears essential relevance for cognition. What determines the outcomes of our cognition is not so much the substance, or the matter, or some raw data or 'brute facts'; rather, what patterns our mental states and thus our cognitive contents are the forms of manipulation, to put it in more prosaic terms, or rather *ars combinatoria*, to spell it out more poetically. Realizing that it is 'the way of doing things' rather than the physical dictate or passivity of the biological being that shapes our cognitive world opens a yet more fundamental perspective on the relevance of art-making. Placing art in the world of cognition and the mind is grounded in two premises: first, following from the premise that physical reductionism is not only incomplete but also inadequate, there arises a view that the aesthetic version is a constitutive form of the world; second, the brain and mind processes themselves do not follow pre-existing and deterministic paths, but are rooted in the potentiality of states and events, very much like art and science alike.

This contribution aims at examining the inter-relatedness of the mental and the aesthetic, of the mindful and the artful, and thus represents an attempt to bridge the philosophy of mind and the philosophy of art.

1. 'Filling In' and 'Leaving Out'

a. 'Blind Spot'

We all know of the spot on the retina where the optic nerve exits the eye, the place where there are no photosensitive cells, and thus no possibility of a picture being formed on that very spot. This spot is literally blind. Admittedly, it is always there, and we live all our lives long with it – and see regardless of it being there. Yet, 'blind spots' do not cause Emmentaler[2] – as an image of reality. We simply do not see two holes in our visual fields. On the level of the optical-neurophysiological explanation, the 'blindness' is literally true, and metaphorically false. On the level of perceptual experience, the 'blindness' is literally false, and metaphorically adequate.

What happens is that the eye compensates for the 'lack of stimuli', and creates visual information from the overall context. If seeing were just a matter of depiction, there would be no way to escape the holes in our visual field. However, perception is too complex a

phenomenon to be reduced to such a functionalistic schema. The very fact that we see regardless of our 'blindness' on particular spots, and that we see the whole picture regardless of the holes, speaks in favor of the conception of perception as a process characterized by the 'filling in' of information that compensates for the lack of optical data.

But to state matters clearly, the eye is blind anyhow, and not only in its 'blind' spot. We simply do not see retinal images. They are, as far we know, small, inverted, concave, permanently fluctuating with every move of the head, and being bombarded by an enormous number of photons. It is not our eyes but we who see. The eye is, just like a camera, blind. Nevertheless, the question arises: How is perception possible at all?

Let me, for the purposes of this paper, respond to this complex question in a selective way that may sound as follows: we see what we know (rather than what is communicated to us by optical stimuli). In other words, the eye itself is a poor performer of seeing. It can only see what the brain/mind knows and, consequently, be blind to all that which we have no other cognitive instruments of recognition (memory, language, etc.) for.

I believe, even on the ground of these few examples, that we have sufficient evidence to draw some basic conclusions on the nature of vision, which may also serve as an argument from perception, relevant for a more competent insight into the way the brain/mind works.

For instance, one of the conclusions is that there is no sense in the so-called sense-data. In the same way, what was called and considered to be 'given' is in no way provided in such a naked or nad've mode. It is neither the case that the sense-data themselves are meaningful, nor is it the case that the 'given' is literally given in any way (it should rather and possibly be called 'taken', as Gombrich proposed).[3]

In other words, we do not see meaningless data, but only that which exists within the symbolic network of significations.[4] We arrive at meaning and interpretation as key concepts, and we can further state that: There is no imaging without meaning; there is no perception without interpretation. (A note of caution is necessary here, in order to prevent the possible conclusion that perceptual experience could be conceived of as reducible to the following formula: sensation + interpretation. There is only one indivisible cognitive process; yet, the two can be analytically discriminated for theoretical purposes.)

b. Selection and Inhibition

Our sense organs are constantly bombarded with uncountable impulses, and these stimulus-patterns change instantaneously with every change of the position of our body, with every move of our head. And yet what we receive and register, and what we are capable of processing, is but a tiny fraction of the huge amount of the potential data, and by no means an accurate report of what goes on in the sensory apparatus. The unregistered stimuli either do not pass the sensory filter, or the brain-body-mind can not make sense of them.

It has been calculated that what we receive does not exceed one trillionth part of the external stimuli. 'Modern analysis of the nervous system and the mind yields a surprising conclusion: instead of experiencing the world as it is, people experience only about one trillionth of outside events: a small world indeed!'[5]

Taking this into account, we realize that 'more' (stimulus or processing capacity) can not be the ideal of a cognitive being. That is, the implicit wish that we be more sensitive, or register more, that we be more attentive to a larger amount of data, or be able to retain more than we are adequately equipped for a faithful access to the big world is quite naive, as it is naive to believe that that would solve the problem of cognition, or at least significantly reduce the same. Since, what determines cognitive and mental states is not the amount of sensual-data, or the fidelity of their internal mirroring, and it is not the representational faithfulness of the sensory apparatus; rather, what shape our brain and mental maps are the forms of self-generating processes. Neurologists teach us that our brain does not behave like an obedient servant who faithfully executes what is communicated to it from the periphery. On the one hand, it selects, i.e. inhibits and ignores most of the potential neural activity, and on the other, it weighs and filters; it recycles the incoming impulses in a way that takes the form of a chaos. The process is such that it can hardly be represented in algorithmic terms, since there is an internal neural dynamic that is self-referential, there are flexible switches and creative loops, mediated feed-backs, and self-generated responses, all of which resign from the classical causal and deterministic scheme. This is probably the reason why, even today, both the brain and the mind are still considered mysterious and paradoxical.

Both the filling in of perception with visual content where there is none on the one hand, and the unintended and selective leaving out of a great number of 'surplus' and uninterpreted data that attack our sense organs on the other hand, speak in favor of the thesis that seeing must mean more than either the physicalist or physiologist standard account provide us with. The outcome of cognitive processes is more than the sum of their sensory components. Seeing is not merely the result of such a summation.[6]

Visual and other forms of perception, like all our cognition, fall within memory maps on the one hand, and plans of action on the other. With respect to the former, the actual state of affairs – the actual empirical stamp – does not alone determine cognitive contents; cognitive contents are shaped by past experience or bodily memory more directly than the ongoing sensual report. With respect to the latter, all the present mental states make sense within the

scheme of actions yet to be done. The present seems to be less significant than the information that lies beyond the actual. Thus, what is detrimental for the articulation of mental events and cognitive contents is not what is, but what might be.

We can generally state that the *animal symbolicum* lives his/her life in a world of signs that typically do not rely on immediate state of affairs, and that primarily serve to recall things in absentia, and thus enable us to grasp things that lie beyond the reach of immediate experience, i.e. to conceive of things presently unseen, unheard, untouched, etc., and thus help us realize our lives beyond the realm of the actual and the 'real'. It is typical of humans to actively practice the 'if-ness' of experience, treating the 'blind' as if it were seen, ignoring the seen as if it were unseen, taking the absent as if it were present, seeing fragments as if they were wholes, etc.

In short, if seeing appears to be the result of experience which goes beyond the reach of eyesight, it is equally possible to state that mental events originate from sources which exceed the hardwiring of the brain. Thus, if the eye is said to be blind (with respect to seeing, it is complex and differentiated as we find it in humans), it is justified to say that the isolated brain must be dumb (with respect to the fabrication of mental events).

There is an important lesson to be learnt from the theory of perception which is relevant for the philosophy of mind: The percept is created rather than re-presented. Consequently, it might be said that the mental is invented rather than induced from the neural activity of the brain alone. Based on the above assumptions, a strong thesis might be formulated: the empirical is not given, it is created to a great extent. In this way, the empirical does not dissolve into mere fiction, but rather disappears as the 'bottom rock' of knowledge. It is no longer human-less, but co-constituted by the human agent.

2. The Artistry of the Mind

The argument from perception bears relevance for the matters of the mind. The lesson from the blind spot, the fragmented processing of data, the filling of missing data and the filtering of surplus information, the inhibition of the 'insignificant', the imaginative inclusion and selective exclusion, invention and ignorance, etc., displays important features of the mental mechanism which is basically non-linear and self-referential.

Much of what we know from the current cognitive science and the brain/mind research speaks in favor of the thesis (irrespective of the loud proponents of strong cognitivism) that the brain is not a computing machine, and that the mind is not reducible to software.

Our neural system allows for the processing of sensory data which are designed to 'mean more' rather than 'literally denote', i.e. not to be taken and interpreted in a straightforward and one-dimensional way. The neural system displays a kind of a data transfer, analogous to the one we have recognized and have explored well within the theory of metaphor. If it is true of the metaphor that, as MacCormac says, 'unless a word can be taken in more than one sense metaphor is impossible',[7] if, in other words, a polysemy is the prerequisite for the 'transfer' of meaning, then the same seems to be basically true of perception and of the other forms of cognition in their fundamental basis itself: only because our neural apparatus is capable of multiple 'reading' and is not bound to a one-to-one correspondence can we actually see, hear, smell, etc. Only because we (i.e. our biological being) can deal with fragmentary, fuzzy, unstable, paradoxical and contradictory data can we live in a world whose constitutive features are quite different from the internalized sensory image of it. – After all, the world we live in and experience in no way truly resembles the small 'world' within our skull (finally, the latter should be dark and actually inaccessible to be seen as optical data on the way to the central nervous system converted into electro-chemical information, which again means that the light signals must be transcribed or restated symbolically).

In a way, the mind can be defined as a metaphorical organ. This is not to mean that the mind uses metaphors (that would, indeed, be no great discovery at this late stage of the metaphorological advance), but should rather point to the fact that the mind operates with and manipulates data, in order that they become 'meaningful' to us, in a very similar way to the metaphorical 'transfer', which is so typical and widely used in language. That is, the mind does not take that which is 'literally' there, but rather alters the 'given', interprets and reinterprets it (and not to forget, invents the missing or 'blind' portions of the seen), always taking it a necessary step beyond the immediately present or the physically performed. In the final instance, it enables us to make guesses about the possible, and even consider what seems to be improbable, if not even impossible. In its extraordinary capacity, it can easily ignore what is, and can competently perform and play with what might be.

The mind is flexible and sufficiently adaptive to cope and play with alterations, it is skilled to invent non-existent but possible plans; moreover, it can conceive of the virtually impossible.

At least two basic conclusions follow from the above:

a) Within such a scheme, there is no room for mirror images, for the literal replica of the 'external world', and no possibility of a faithful copy of the same. The world that we perceive and know is not a replica of a sensory imprint.

b) The perceptual world is not imprinted from the neural scripture upon our sensory apparatus; rather, it is a world which we have no immediate access to, and which is feasible to us as human beings deprived of any divine powers, which is doomed to the lasting efforts to order chaos, to fill in the gaps and bridge the isolated parts, to color the colorless, to feel the completely emotionless in nature, to speak up for the mute, to shape patterns within blurred sensual confusion, to provide meanings for speechless things and events.

Our world is an intentional world, and as such it originates in the self-generating processes of the brain/mind, since 'aboutness'[8] is not mimetic, it is rather referential in a very complex way. Since what is reported in the brain can not account for what we actually perceive, know and feel. The brain/mind works in its amazing, still mysterious and paradoxical way, in order to create wholes from bits, to cognitively constitute objects where there are only fragments of the same, to bring order and structure into chaos, to neglect the empirical and impose the probable, to ignore the literal and make guesses about the 'transferred'. We now know that it does this to a great extent in a self-generating manner which resembles the production of an artifact more than it resembles software or computation. – The newly coined metaphor of the mind seems to be justified and convincing: The mind is an artifact.

If the mind is man-made in a profound sense, or, in other words, if it is our most sophisticated artifact, then the world it convenes can not be but viewed as *human fabrication*, where not only colors are added to the pale face of the physical world, but our entire mental life is engaged in the reliving of the lifeless nature.

Because the mind is not found in neurons, and is not about some pre-given and empirically determined world, it rather appears as the outcome of our doing, first and foremost of the creative investigation of the sciences and arts. Art and literature thus appear to be better guides of the world of the mind than many of the Artificial Intelligence enterprises which work with reductionist models, according to which the mind is nothing but behavior or function, nothing but neural activity or computation. If it is truly concerned about the possible ways that the brain/mind works,[9] and not only about what can be computationally represented, cognitive science should then take into account the aesthetic dimension of human mentality, not as its 'beautiful' accompaniment but as its constitutive component.

Conclusions and Consequences

The richness of the world (experiential, cognitive, etc.) is not due to the amount of incoming information from outside, nor is it due to the faithful processing of this information in a straightforward and unambiguous way by the nervous system; the world as it appears to us is rather a product of a creative enterprise, in which what is literally given is very little and what is inherited is only partial.

Now, the brain/mind can 'invent' missing parts of the experiential world only because other senses, or rather the entire bodily activity, supply information necessary to create what we consider to be reality. What the brain does on an elementary level of cognition is analogous to what art does within the global scheme of human cognition and knowledge. It also 'leaves out' much of the potential material, and 'fills in' particular aesthetic patterns in the long historical process that makes the 'story of art'. The story of the mind and the story of art seem to be mutually interconnected.

Art-making becomes a way of world-making in a sense that exceeds Goodman's nominalism; it re-emerges on a yet more profound level, providing support to Goodman's, sometimes abstract, symbolism through the modern science of the brain/mind.

In the same way that metaphors have been slowly recognized (after a long and productive theoretical evolution) as cognitive tools, and not only as 'surplus meanings' that can successfully be replaced by literal paraphrases at wish, efforts have to be made in realizing that art (most generally defined as 'a way of doing things') is not for the sake of decorative appeal, a beautiful surrogate of what we already have, a double or alternative nature, but is rather an irreducible way of world-making. It represents a unique way of compensating for sensual 'blindness', empirical fragmentation and neural chaos.

We have good reasons for the claim that the ways of art-making appear to be the ways of the brain/mind wiring. It is for this reason that cognitive science would do a poor, or at least a partial, job if it excluded aesthetics from its considerations.

Thus, let the final statement that I am going to make in this paper be the motivational motto of a long lasting project, if not even and possibly of a sub-discipline of aesthetics – cognitive aesthetics. The philosophy of mind and cognitive science need aesthetics as an integral element of this consortium of disciplines, joined together in an enterprise to decipher the mysteries and paradoxes of the human mind. They need aesthetics not as an additional, nice though unnecessary theoretical accompaniment to the science of the mind, but as a constitutive part, since art has its authentic expression in the overall created world of cognition, and aesthetics appears as the theoretical guide of that world.

For is it possible to conceive of the mind without music, or of the artistry of the brain without art-making? What would our visual world be without the drawn and the painted? Is it convincing to think of the wiring of the brain/mind insensitive to symbolic creations, and what would our mental contents look like without the curved, the composed, the written or the sung?

[1] Alfred North Whitehead (1945) *Adventures of Ideas*, Cambridge: Cambridge University Press, p. 68.

[2] Swiss cheese with holes.

[3] In (1972) *Art and Illusion: A Study in the Psychology of Pictorial Representation*, Princeton, NY: Princeton University Press.

[4] There are numerous ways to support this view: size constancy = a change of the optical stimulus does not influence the contents of perception; size-distance relation = some Indian tribes see tiny moving (human) figures on the horizon as literally small (e.g. as ants), and their approaching as growing in size, and not as a decrease in distance, etc. In the latter case, one could say that the perceivers are not able to interpret the stimulus in the way that others do; i.e. they do interpret it, though in their own way. – It would also be wrong to say that they interpret it literally, since there is nothing 'literal' in this process, there are only various modes of experience which are culturally shaped to a great extent.

[5] Robert Ornstein & Paul Ehrlich (1989) *New World New Mind*, New York: Simon and Schuster, p. 73.

[6] From what has above been said, it follows not so much that the standard terminology of mental states and processes is inadequate (in the sense that it lacks proper verbal labelling), but that it is given a wrong role. Basic terms, such as 'stimulus' or 'receptor' (to name but the two), deceive us so that it is difficult to try to re-conceptualize more complex phenomena once they have patterned our understanding of the most elementary processes. For instance, 'stimulus' suggests that there is external excitement imposed upon the sense organ designed to receive it. Furthermore, 'receptors' unmistakably refer to the capacity of the sensual 'apparatus' to receive and record the sensory impulses that convey the contents of perception. The expressions of the 'windows' and 'doors' of perception (Huxley) as gates for the ready-made external world to enter the internal mental stage consequently only complete this scheme.

[7] Earl R. MacCormac (1985) *A Cognitive Theory of Metaphor*, Cambridge, MA: MIT Press, p. 83.

[8] John Searle's definition of intentionality.

[9] Hubert L. Dreyfus (2002) "How Merleau-Ponty's Non-representationalist Phenomenology is Supported by Recent Cognitive Science" (draft), Footnote 3, p. 18.