"Aesthetics, Ecology and Google AI: A Preliminary Inquiry into Xenorationality"

„Estetika, ekologie a Google AI. Předběžný průzkum xenoracionality"

Abstract

This paper presents a blueprint for a new aesthetic theory which is informed by recent developments in the philosophy of speculative realism on the one hand, and capable of addressing issues arising from the ecological crisis and the emergence of artificial intelligence on the other. The primary point of departure here is the philosophy of Quentin Meillassoux and Immanuel Kant. Aesthetics is understood as a speculative investigation of the realm of possible assemblages (or compositions) of entities. Such assemblages manifest *xenorationality* – that is, non-human principles of association and composition. Drawing on the work of Alfred North Whitehead and Steven Shaviro, I define rationality as the investment of external objects into the human mind, rather than an autonomous subjective faculty. General genetics of xenorationality uncovers the original exteriority and ancestrality of rational principles vis-à-vis the human subject. Furthermore, xenorational aesthetics is demonstrated on the example of Google AI AlphaGo program's surprising move in the 2nd match against the world's top Go player, Lee Sedol. This move was described by viewers as "inhuman" yet "beautiful", and it will be argued that it was a manifestation of AlphaGo's xenorationality. Lastly, the argument can be generalised to planetary ecosystem processes, leading to an assessment of the aesthetic experience of xenorationality in the process of cognitive mapping as the major driver of socio-political practices in the Anthropocene.

Abstrakt

Článek načrtává estetickou teorii, která na jedné straně čerpá z výdobytků filosofie spekulativního realismu, a na straně druhé ponouká plodné uchopení problematiky ekologické krize a umělé inteligence. Čerpá u toho primárně z práce Quentina Meillassouxa a Immanuela Kanta. Estetika je v článku chápána jako spekulativní zkoumání terénu možných seskupení jednotlivých entit. Můžeme v ní spatřit *xenoracionální* principy – tedy ne-lidské principy asociace a kompozice. Na základě práce Alfreda Northa Whiteheada a Stevena Shavira je racionalita následně definována jako výsledek působení externích objektů na lidskou mysl a nikoliv jako svébytná subjektivní mohutnost. Pro objasnění této teze je představena idea geneze xenoracionality. Principy racionality jsou pod zorným uhlem této ideje původně vnějšími a ancestrálními elementy, které nepocházejí z lidského subjektu samotného. Po tomto teoretickém expozé je pak xenoracionální estetika blíže ilustrována

na několika příkladech. Hlavní roli mezi těmito příklady zastává překvapivý tah ve hře Go, kterým umělá inteligence AlphaGo porazila jejího předního světového hráče Leeho Sedola. Tento tah byl pozorovateli a pozorovatelkami popsán jako „nelidský“ a zároveň „krásný“. Koncept xenoracionality může být nakonec dále zobecněn na úrovni planetárního ekosystému. Estetika xenoracionality totiž může být považována za významný zdroj kognitivních map pro společensko-ekonomickou praxi v antropocénu.

Keywords
aesthetics – rationality – speculative realism – Quentin Meillassoux – Anthropocene – artificial intelligence

Klíčová slova
estetika – racionalita – spekulativní realismus – Quentin Meillassoux – antropocén – umělá inteligence

The author is a PhD candidate at the Department of Environmental Studies, Faculty of Social Sciences, Masaryk University, Brno. *This paper was written in collaboration with the Department of Environmental Studies, Faculty of Social Sciences, Masaryk University. Work on this paper has been supported by the project MUNI/A/1004/2015 “Contemporary Approaches to the Study of Environmental Phenomena II – Specific Research at Masaryk University”.*

362455@mail.muni.cz

AESTHETICS, ECOLOGY AND GOOGLE AI: A PRELIMINARY INQUIRY INTO XENORATIONALITY

LUKÁŠ LIKAVČAN

1. Introduction

> "It's not a human move. I've never seen a human play this move. So beautiful."**1** Fan Hui, three-time European Go champion and advisor to the AlphaGo team

In Denis Villeneuve's motion picture *Arrival* (2016), humanity is faced with a visit from aliens communicating in a completely incomprehensible language that reflects the unique way they perceive reality. In contrast to earthlings, they do not structure their experience according to a time arrow delineating past, present and future. Presumably, they instead perceive the temporal dimension as a plateau where events happen simultaneously. In order to give us a glimpse of this experience, they invite us to learn their language, which can subsequently convey to us a novel view on temporality. This speculative plot represents a universal dilemma the present paper attempts to cover conceptually: How are we to comprehend, and negotiate with, alien forms of existence such as an animal, an artificially intelligent computer, a complex ecosystem or indeed an alien creature on a visit from its home planet in a galaxy far, far away? And how can some alien force imprint onto the human mind a glimpse of its own principles of assembling reality?

1 Cade METZ, "The Sadness and Beauty of Watching Google's AI Play Go", *Wired*, 11 March 2016, http://www.wired.com/2016/03/sadness-beauty-watching-googles-ai-play-go (accessed 30 Jun 2016).

Of course, the plot of *Arrival* is but a metaphor. This paper does not solve communication with aliens, but it does bring to the fore a small conceptual novelty: the idea of *xenorationality*. Arguably, the incredibly slow geological time of mountains and oceans, the algorithmic comprehension of AI systems or perhaps higher-dimensional perception could be listed as xenorationalities. The main idea of the paper is that aesthetics constitutes the primary means of making manifest and comprehending xenorationalities. For this reason, it employs the conceptual apparatus of the so-called *speculative realism* (SR). This philosophical movement goes beyond the Kantian "Copernican Revolution" – the pivotal precondition of contemporary Western philosophy – in the Anglo-American as well as Continental tradition. In particular, the kernel of Kant's theoretical credo is identified as the establishment of an exclusive mode of access to external reality, by means of pre-structured cognitive faculties of the human mind (*a priori* forms of sensibility – time and space – and of reasoning – twelve categories).**2** The wit of this pre-structuring lies in the inherent distortion of all experience and concepts of the world, which consequently grants Kant the possibility to refuse comprehension of objects in their autonomous reality. The prominent SR philosopher Quentin Meillassoux labels this insight as *correlationism*: "the idea according to which we only ever have access to the correlation between thinking and being, and never to either term considered apart from the other."**3** Subsequently, SR aims to provide tools for overcoming the vicious circle of the supposedly distorted human access to reality, thus attempting to reclaim "the *great outdoors*, the *absolute* outside of pre-critical thinkers".**4** SR philosophers achieve this divorce from the Kantian tradition by manifold means: some draw on Leibniz, others on Alfred North Whitehead, still others on Descartes or Alain Badiou, and some link their accounts to

2 Immanuel KANT, *Critique of Pure Reason*, Cambridge: Cambridge University Press 1998, pp. 157, 212.

3 Quentin MEILLASSOUX, *After Finitude*, London: Continuum 2009, p. 5.

4 *Ibid*., p. 7.

Aristotle, Nietzsche, Schelling or Heidegger and Husserl – or perhaps all of the above.**5**

The task of this paper is truly straightforward – to build upon particular premises of Meillassoux's SR theory in order to elucidate possible consequences of speculative philosophy for aesthetics and the role of aesthetic experience. The speculative position is held here naïvely and deliberately – the paper simply demonstrates how one can engage with SR, given the ambivalence, informality and internal inconsistency of the movement. For this reason, the paper bears the subtitle of "preliminary study" – it is rather an exercise in adopting a new and barely explored theoretical framework than a full-blown philosophical analysis. However, this task is certainly not taken lightly. On the contrary, I believe that SR is actually on to something substantial. This brings me to my two main motivations for writing this paper.

First, I believe that reclaiming the foreign territories of world-in-itself is presently our most pivotal philosophical task, since we are strongly confronted with objective reality which is independent of human perception in the wake of an ecological emergency. For this reason, one should prepare the theoretical grounds for updating aesthetics to the settings of the Anthropocene, since building uneven connections between humanity and the rest of the world increasingly appears as the necessary presupposition of the continuing existence of humans as a species capable of producing art and aesthetic theories, among other things. I am therefore interested in uncovering the potential of SR regarding the development of an aesthetics that genuinely takes non-humans into account, and so contributes to broader social, political and cultural processes between us and them. Moreover, SR most probably represents a progressive elaboration of Gilles Deleuze and Félix Guattari's geophilosophy or Bruno Latour's actor-network theory, both of which list the environmental catastrophe among their primary philosophical motivations.**6**

5 The sources of SR naturally span far beyond the corpus of European philosophy. They include Soviet sci-fi (e.g., Alexander Bogdanov), natural sciences (such as ecology and quantum physics in case of Timothy Morton) or mathematics (mainly in case of Ray Brassier and Quentin Meillassoux), just to mention a few of them.

6 See Patrick HAYDEN, "Gilles Deleuze and Naturalism: A Convergence with Ecological Theory and Politics", in: Bernd HERZOGENRATH (ed.), *An [Un]Likely Alliance: Thinking Environment[s] with Deleuze|Guattari*, Newcastle: Cambridge Scholars Publishing 2008, p. 29; Gilles DELEUZE – Félix GUATTARI, *A Thousand Plateaus*, Minneapolis: University of Minnesota Press 1987; Bruno LATOUR, *We Have Never Been Modern*, Cambridge, MA: Harvard University Press 1993.

Second, I believe humans are increasingly confronted with the real possibility of producing weak AI technologies,**7** which are able to independently invent and update their processing algorithms, learn and execute complex tasks and comprehend reality in a much more nuanced and structured manner. To use Deleuze's term, the *becoming* of an AI can be seen as congruent with the emergence of human rationality, where originally exterior principles are invested in some entity that consequently adopts these principles and begins to creatively produce, reproduce and innovate them.**8** At the end of this genesis, AI faces its inventors as an autonomous entity and conducts operations which are conceived as being led by definite yet opaque principles (e.g., self-produced complex algorithms or internal languages).**9** Such principles can be then comprehended allusively in an aesthetic experience, as far as the direct cognitive comprehension is blocked by their relative non-transparency.**10** The possibility of such an aesthetic access to machine thinking is important, since we will probably need to negotiate new common (geo)political coordinates with AI technologies.**11**

Before the paper proceeds to the main argument, let me make two brief conceptual clarifications. Rationality is understood here as a distinct *mode of composition*. It corresponds to what Kant terms reason: the ability to construct principles.**12** Nevertheless, this faculty has its own predefined architecture, which consists of *a priori* forms of sensibility and understanding.**13** The ability to construct principles is not unlimited; it is governed by its internal structure, and as such it delineates a range of possible compositions. This paper extends rationality to all possible entities, a shift deemed adequate for reasons that will be unveiled in the course of the following argument. Fundamentally, human rationality will be analysed as the outcome of evolutionary processes exterior to subjectivity,

7 The difference between a weak and a strong AI can be found in John SEARLE, "Minds, Brains and Programs", *Behavioral and Brain Sciences*, Vol. 3, 1980, No. 3, pp. 417–457.

8 See genetics of xenorationality in Chapter 3.

9 Melvin JOHNSON – Mike SCHUSTER – Quoc V. LE – Maxim KRIKUN – Younghui WU – Zhifeng CHEN – Nikhil THORAT – Fernanda VIÉGAS – Martin WATTENBERG – Greg CORRADO – Macduff HUGHES – Jeffrey DEAN, "Google's Multilingual Neural Machine Translation System: Enabling Zero-Shot Translation", https://arxiv.org/pdf/1611.04558v1.pdf (accessed 30 Nov 2016); Timothy REVELL, "Google's neural networks invent their own encryption", New Scientist, October 26th 2016, https://www.newscientist.com/article/2110522-googles-neural-networks-invent-their-own-encryption/ (accessed 11 Nov 2016).

10 As is evident in case of Timothy Morton's hyperobjects, e.g. climate change or systems of planetary computation. See Timothy MORTON, *Hyperobjects*, Minneapolis: University of Minnesota Press 2013, pp. 15–17.

a crossroads of alien principles of associations embedded in the human mind.

Second, ontology (or metaphysics) is understood here as the research into basic realities which constitute the units of scientific analysis. Hence a study of the nature of objects or a theory of substance fall within its scope. The point of ontology is to establish an *object-base* – a list of entities and features which then can be assembled into higher-level complex structures. This approach to ontology is historically represented in analytic and post-analytic metaphysics, but also in post-structuralist accounts.**14** Aesthetics always adopts some ontological framework in order to give a comprehensive account of the matter in question, that is, the principles of composition (as defined in Section 3). For this reason, aesthetics is distinct from ontology – as any other discipline – though its findings depend on a preferred ontological framework.

The paper will start with Meillassoux's philosophy, focusing on his treatment of contingency and the *principle of unreason,* in order to establish the groundings on which it is possible to envision xenorationality as a legitimate philosophical concept. The following section will introduce Steven Shaviro's and Whitehead's understanding of aesthetics. Further, it will be argued that in the aesthetic experience one can notice the genetics of xenorationality, the process during which formerly alien principles of composition are inserted in an emerging human subject. Finally, the developed analytical toolbox will be employed to examine manifestations of xenorationality, in relation to the practice of cognitive mapping and visualization of complex entities.**15** The main example will be the potency of (presumably weak) AI machines to harbour their own, independent form of assembling within, accommodating to and relating towards the external reality. A similar conceptual framework will be applied with regard to planetary

11 See Benjamin H. BRATTON, "Some Trace Effects of the Post-Anthropocene: On Accelerationist Geopolitical Aesthetics", *e-flux journal*, 2013, No. 46, http://www.e-flux.com/journal/46/60076/some-trace-effects-of-the-post-anthropocene-on-accelerationist-geopolitical-aesthetics/ (accessed 30 Jun 2016); Benjamin H. BRATTON, *The Stack*, Cambridge, MA: MIT Press 2015.

12 KANT, *Critique of Pure Reason*, p. 387.

13 *Ibid*., pp. 157, 212.

14 For analytic and post-analytic philosophy, see Donald DAVIDSON, *Subjective, Intersubjective, Objective*, Oxford: Oxford University Press 2001; Willard V. QUINE, "On What There Is", *Review of Metaphysics*, Vol. 2, 1948, No. 5, pp. 21–38. For post-structuralism, see Manuel DELANDA, *A New Philosophy of Society: Assemblage Theory and Social Complexity*, London: Continuum 2006, p. 1.

15 Nick SRNICEK, "Navigating Neoliberalism: Political Aesthetics in an Age of Crisis", presented at *The Matter of Contradiction: Ungrounding the Object*, Vassivière, France, 8–9 September 2012.

ecosystem processes. The aim of the paper is to show how the conceptual apparatus of aesthetics may be enriched by the idea of xenorationality.

2. Philosophical Groundings of Xenorationality: Contingency and Unreason

In his much-appreciated monography *After Finitude,* the French philosopher Quentin Meillassoux provides a sound argument against correlationism by way of stretching its principles to their upper limits. Kant denies that we can have any genuine knowledge of the thing-in-itself, that is, of external reality, or – as Meillassoux would put it – *the absolute*, without it having been always already thought or perceived. Meillassoux, however, argues that there is more to be said about the thing-in-itself through speculative thinking. In his account, speculative thinking includes "every type of thinking that claims to be able to access some form of absolute".**16** What Kantian philosophy actually rules out is only the metaphysical, dogmatic access to the absolute,**17** but not the kind of access to the absolute which would cease to rely on the cornerstone of metaphysics, which Meillassoux identifies as the principle of sufficient reason.**18** Hence his task is to show how speculative yet non-metaphysical thinking is possible.

Meillassoux's epistemological strategy is foundationalist, but he does not rely on internal principles of subjective cognition. On the contrary, he regards exteriority as the foundation of our cognitive pre-structuration. Briefly, given that the foundation of cognition is outside the subject, the subject in his contemplation about objective reality can align with these exterior principles and it can gain legitimate, speculative access to the understanding of external reality, that is to "the *great outdoors*, the *absolute* outside of pre-critical thinkers".**19**

16 MEILLASSOUX, *After Finitude*, p. 34.

17 KANT, *Critique of Pure Reason*, pp. 139–141.

18 "[N]o fact can be real or actual, and no proposition true, without there being a sufficient reason for its being so and not otherwise, although most often these reasons just cannot be known by us." Gottfried Wilhelm LEIBNIZ, "Monadology", in: Nicholas RESCHER (ed.), *G. W. Leibniz's Monadology*, Pittsburgh, PA: University of Pittsburgh Press 1991, p. 21.

19 MEILLASSOUX, *After Finitude*, p. 7.

According to Meillassoux's interpretation of Kantian philosophy, the thing-in-itself is unknowable, but it is at least conceivable under two conditions:

1) The thing-in-itself is non-contradictory
2) The thing-in-itself exists

As Meillassoux points out, if 2) were false, then appearances without their source in what appears would be possible.**20** However, this cannot be the case on Kant's account, since appearance exists only in the relation of perception between subject and object.**21** Otherwise, there would be a relation with only one term, which is contradictory.**22** Hence 1) is also true, because a thing-in-itself is in fact a necessary condition of any appearance whatsoever and its non-existence would lead to contradictions concerning the status of appearances.

Meillassoux shares the two aforementioned transcendental conditions of the absolute (i.e., the thing-in-itself, or, in the Kantian account, the unconditioned). But he also demonstrates that we can penetrate the nature of the absolute through the feature of a perception of reality called *facticity*. What does it mean? Meillassoux explains facticity as the impossibility of establishing either the necessity or the contingency of the object being perceived.**23** In other words, *we cannot think why it should be impossible for the object of perception to change*. To be as clear as possible, facticity does not mean the absolute contingency of the state of affairs, but the absolute contingency of the very principles (or reasons) that guarantee that the world manifests itself in a particular way – that is, Kantian forms of perception, logical laws and so on.**24** This profound lack of reason for perception being one way or another is the crucial discovery for Meillassoux, because it contradicts the principle of sufficient reason, yet it further allows him to infer postulates about the nature of the thing-in-itself, namely

20 *Ibid.*, p. 31.

21 KANT, *Critique of Pure Reason*, pp. 110–111.

22 That means, there would exist a case of relation where something appears, but this something is somehow missing, which is, of course, non-sense. One could argue that hallucinations, dreams or fake/distorted memories are precisely such appearances without the appearing. But that is not the case – according to Kant, these phenomena are still indirect products of previous sensory comprehensions, however subsequently processed and distorted in imagination. In other words, the "building blocks" of any dream or hallucination are found in previous experience of outer objects. See *ibid.*, pp. 328–329.

23 MEILLASSOUX, *After Finitude*, p. 40.

24 *Ibid.*, p. 39.

25 *Ibid.*, p. 53.

26 *Ibid*., p. 66.

27 For original formulation of this premise, see *ibid.*, p. 67. The argument however requires further clarification. Raphaël Millière explains: "Meillassoux's central claim is that a contradictory entity would be immutable and necessary, since there would be no 'alterity' for it to change: it would have simultaneously every property and its opposite, would be existent and non-existent, and thus could not change or cease to exist. Therefore, such a hypothetical entity would be a necessary being, which is impossible if we grant factiality [...]. In classical logic, if a contradiction is true, anything is true." Raphaël MILLIÈRE, "Principle of Non-Contradiction", in: Peter GRATTON – Paul J. ENNIS (eds.), *The Meillassoux Dictionary*, Edinburgh: Edinburgh University Press 2015, p. 140.

that it is without reason, or contingent. He likewise stresses that contingency alone is the necessary property of any entity (or event). This is not just a discovery about the limits of human cognitive faculties, but a genuine statement about the character of the thing-in-itself. As Meillassoux puts it:

> [F]acticity will be revealed to be a knowledge of the absolute *because we are going to put back into the thing itself what we mistakenly took to be an incapacity in thought*. In other words, instead of construing the absence of reason inherent in everything as a limit that thought encounters in its search for the ultimate reason, we must understand that this absence of reason *is*, and can *only* be the *ultimate* property of the entity. We must convert facticity into the real property whereby everything and every world *is* without reason, and is thereby *capable of actually becoming otherwise without reason*. We must grasp how the ultimate absence of reason, which we will refer to as 'unreason', is an absolute ontological property, and not the mark of the finitude of our knowledge.**25**

The apparent negative defectiveness of the thing vis-à-vis the rational representation of the thing is turned into the positive property of the thing – into its inherent quality. This "unreason" is absolute, hence it belongs to the thing-in-itself, and it is further explained as a form of chaos, or more precisely a *hyper-chaos*. This hyper-chaos fits perfectly into the Kantian picture of the thing-in-itself, since it is non-contradictory, given that

> 1) chaos remains chaos and thus cannot produce any necessary entity (the auto-limitation of omnipotence of chaos),**26**
> 2) chaos cannot produce a contradictory entity, since a contradictory entity would be necessary.**27**

However, what is remarkable in Meillassoux's treatment of contingency regarding our clarification of xenorationality (see below) is that not only are entities necessarily contingent, but that the principles of their becoming, assembling and change are necessarily contingent too.**28** Let us repeat the crucial passage in the aforementioned quotation from *After Finitude*: "we are going to put back into the thing itself what we mistakenly took to be an incapacity in thought."**29** Hence there is no immutable form of structuring of any set of entities, as is the case with Kantian (subjective) rationality (further absolutised in Hegel's idealistic philosophy).**30** It follows that there is a potential for constructing manifold principles, predominantly alien to human reason, which is only a tiny corner in the *transfinite* universe of ways things can be assembled together.

Let us examine the notion of the transfinite in more detail. When we think about counter-factual possibilities (i.e., the alternative ways the world might be), we usually assume that there is a finite number of these possibilities. We can think of the world where Donald Trump is not a president-elect of the United States, where you are not reading this paper or where the author of this paper was not drinking red wine on the evening of the 8th of November 2016. Despite the amount of these counterfactuals being immensely large and practically uncountable or even cognitively inaccessible by the human mind, we nevertheless implicitly presuppose that these possibilities can be at least theoretically listed, for example, in some utterly large diagram starting from one node – the beginning of the universe. However, the idea of the transfinite refuses exactly this presupposition – that "there is the totality of conceivable possibilities".**31** Particularly, this idea tackles not the conceivability, but the totalisability of these possibilities.**32** Since Cantor, the standard axiomatisation of set-theory employs the assumption that if one considers a set

28 MEILLASSOUX, *After Finitude*, p. 83.

29 *Ibid*., p. 53.

30 Georg Wilhelm Friedrich HEGEL, *Phenomenology of Spirit*, Oxford: Oxford University Press 1977.

31 MEILLASSOUX, *After Finitude*, p. 102.

32 *Ibid*., p. 103.

33 *Ibid.*, p. 104.

34 *Ibid.*, pp. 104–105.

35 Ludwig WITTGENSTEIN, *Philosophical Investigations*, Oxford: Blackwell 1999, pp. 8e–9e, 11e–12e.

with any number of entities, the set of possible groupings of these entities is always bigger than the number of the entities in the set. This assumption holds for all numbers, including *infinite* – and it follows that we never have one infinite, but the unlimited series of such infinites always bigger than the preceding one. The notion of the transfinite captures precisely this idea – that there are infinite *infinites* rather than one and only Infinite.**33**

If we now consider any set of counter-factual possibilities (even the infinite one), we will always come to the same conclusion – the number of their groupings will be always larger and we will necessarily run into progressive unfolding of the series of infinites. It follows that there cannot be any totality of possible state of affairs, and if we think of the largest thinkable set of such possibilities, we will come to the following outcome: even the set of all thinkable events is unthinkable (i.e., uncountable) once we will begin to count all the combinations of its parts.**34** Henceforward, there are always possibilities utterly and necessarily strange to us – a wholly radical otherness that cannot be grasped by reason. Nevertheless, this otherness is the sublime object of the aesthetic experience, as will be explained shortly.

From the course of the aforementioned reasoning, it follows that the absolute (i.e., the unconditioned = transfinite) is a form of unreason. But let us clarify something before we derive the central concept of xenorationality. Despite Meillassoux explicitly stating that unreason is the property of every entity, what he labels here as unreason is *the lack of reason as a reason familiar to the human being*. Thus one can legitimately stipulate that other entities also operate with their own mode of representing reality (which establishes a given form of life),**35** and consequently what appears as reason or unreason is relative to a given entity's point of view. Since the question of reason/unreason is

relative, one can speculate about inner positions of other entities projected into the universe of things beyond the horizon of narrow human rationality. In other words, one can reconstruct their own modes or principles of association, that is, their *xenorationalities***36** using speculative reasoning.

3. Aesthetics and Genetics of (Xeno)rationality

In order to understand xenorational aesthetics, we must proceed first with a definition of aesthetic *experience*. By aesthetics, one usually means a critical study of art, artistic practice or aesthetic expression, the preconditions, nature and phenomenology of aesthetic experience and so on. Furthermore, aesthetic experience is typically taken to provide some sort of direct, immediate access to a sensory object or its representation, which is merely contemplative and hence disinterested. On top of that, aesthetic *judgements* (the judgements of taste) are habitually treated as individual, subject-dependent – in contrast to the presumably objective validity of judgements of reason.**37** On this traditional account, aesthetic experience as well as judgement operates alongside the register of rationality as a parallel form of comprehension. This account, however, contrasts with the understanding of aesthetic experience held in this paper. While the idea that aesthetic experience and rationality are two parallel registers of comprehension is preserved in this account, it also introduces a dynamic relation between aesthetic experience and rationality based upon Whitehead's and Shaviro's aesthetic theory, whereby aesthetic experience provides an encounter with the xenorational sources of rationality.

Alain Badiou can help us here to further pump up the pre-analytic intuitions necessary to understand the following account of aesthetic experience. In his discussion of

36 The speculation grounded in ontology of hyper-chaos leads to an understanding of rationality as external to human mind. Talking about alien reason on the one hand and unreason on the other hand makes no fundamental difference in such a picture. Nevertheless, epistemologically speaking, to talk about xenorationality means to affirm the original exteriority and ancestrality of reason, to talk about unreason means productively nothing except falling back into correlationism.

37 According to Donald PREZIOSI, *The Art of Art History*, Oxford: Oxford University Press 2009, pp. 55–58.

strategies of obtaining knowledge about the external reality, he understands philosophy as the discovery of what *is possible*.**38** Aesthetics (as a discipline) is conceived in this paper as a subfield of philosophy – as a rational human *intra*-species discourse based upon a speculative endeavour into the terrains of possible assemblages (or compositions) of material things. Remember that according to Meillassoux, the only necessity is that everything that is could be otherwise. Aesthetics – and indeed any other philosophical discipline – can be consequently understood as the inquiry into the terrain of possible encounters between objects in the transfinite zone of the absolute. As we can see, exploring the possibility of a rational discourse (that is, a human intra-species discourse) about alien principles of assembling (i.e., xenorational aesthetics) is tightly connected to the possibility of a speculative philosophy. Since speculative philosophy is deemed possible in Meillassoux's account, the diamond road towards xenorational aesthetics opens up. Now, aesthetics is first and foremost understood here as the inquiry into *principles of association*. Regarding associations, this approach is inspired by Bruno Latour, whose use of the notion of composition comes close to an aesthetics understood in materialist terms.**39**

Aesthetics thus invents strategies of "hacking new out of the old".**40** It is the discussion on how to ameliorate, merge or supersede established normative frameworks. However, to define aesthetics as *only* a study of associations is not enough, as doing so does not sufficiently distinguish it from other theoretical disciplines, especially ontology. Aesthetics studies *unique*, *material realizations* of principles of association – events and entities that instantiate principles of association in their own particular manner. Aesthetic experiences provide access to such material realisations. In general, the aesthetic experience instantiates the generic *evolutionary dynamics* of rationality – the way

38 Alain BADIOU, *Logics of Worlds*, London: Continuum 2009, p. 3.

39 See Bruno LATOUR, "An Attempt at a 'Compositionist Manifesto'", *New Literary History*, 2010, No. 41, pp. 471–490.

40 McKenzie WARK, *A Hacker Manifesto*, Cambridge, MA: Harvard University Press 2004, e-book, paragraph 004.

reason is superseded by and confronted with its distorted, alien or perhaps utterly undecipherable image, to which it can be subsequently adapted.**41**

At first glance, such an account of aesthetics may not appear that different from the Kantian understanding. As Shaviro observes, in Kant's *Critique of Judgement*, aesthetic experiences are understood as non-cognitive, disinterested forms of comprehension that do not correspond to any concept whatsoever, always remaining partial and pre-theoretical.**42** Yet Shaviro highlights that an aesthetic experience possesses a hybrid subject-objective nature. It is relational, since aesthetic qualities emerge only in a subject-object interaction, yet the object of aesthetic experience somehow imposes the sensation upon us and for this reason, the aesthetic experience consists rather in a reaction or an adaptation to the exposure to the given object. According to Shaviro, the subject of aesthetic experience does not decipher the object according to its own subjective principles of association, but *it recognises the autonomy of the principles of association instantiated by the encountered object itself*.**43** Since in the Kantian account aesthetic experience is never an experience of the object itself, but only a contemplation of our formal representation of the object, Shaviro's aesthetic theory progressively drifts away from its original inspiration by Kant's *Critique of Judgment*.

In this respect, aesthetic experiences are inherently unsettling, since subjects face objects completely indifferent to them.**44** However, this situation is by no means unchangeable. What appears as the object of "mere" aesthetic experience at first, can (theoretically) in the course of time transform into a sovereign object of rational understanding. This can be the case of ecology, where the immense complexity of ecosystem processes was historically met with awe and humble respect, while nowadays the attitude shifts towards operationalisation of our comprehension

41 Steven SHAVIRO, *Without Criteria: Kant, Deleuze, and Aesthetics*, Cambridge, MA: MIT Press 2009, p. 2. What shapes can such an alien image effectively bear is illustrated in Sections 4.1 and 4.2.

42 *Ibid*., pp. 2, 4–5; Immanuel KANT, *Critique of the Power of Judgment*, Cambridge: Cambridge University Press, pp. 90–91.

43 SHAVIRO, *Without Criteria*, pp. 2–4, 9.

44 *Ibid*., p. 2; Timothy MORTON, *Hyperobjects*, Minneapolis: University of Minnesota Press 2013, pp. 22, 53.

of ecosystems in the categories of biophysics and system theory. This is a typical feature of modern science. As the philosopher of science Roger Strand would say, the crucial feature of the scientific practice is its capacity to break the world down to elementary and easily understandable problems, upon which more complex inquiries can be conducted.**45** This is the operationalisation of the scientific problem, where formerly opaque phenomena are analysed and understood by series of translations into well-established conceptual categories and/or frameworks. However, one must bear in mind that such translations are always distortions (as Latour would say)**46** where the original tension stemming from the incapacity to grasp the object in its opacity gradually disappears.

The possibility of a constant shifting between two parallel but independent registers of comprehension – aesthetic versus rational**47** – uncovers the productive and dynamic relation between aesthetic experience and rational judgement. This relation establishes the *genetics of xenorationality*. Genetics of xenorationality postulates that what is referred to by Kant as the pre-structuration of human rationality is in fact inherited from the surrounding environment in the course of evolution.**48** This thesis can be found in Whitehead's aesthetics. Generally, it focuses on the emergence of the subject itself and conceives it as a *superject* that arises through and from the experience of the surrounding world.**49** Thus the affection by the objects encountered throughout the course of an individual experience shapes and governs the subject: the subject is the result of negotiations with surrounding entities.**50** Aside from the emergence of the individual subject, however, we must similarly give an account of human intra-species rationality – the shared general architecture of rationality, or the pre-structuration of cognitive faculties as conceived by Kant in *Critique of Pure Reason*.

45 Roger STRAND, "Postnormal Science", in: David H. GUSTON (ed.), *Encyclopedia of Nanoscience and Society*, Thousand Oaks, CA: SAGE 2010, p. 623. The idea is present already in René DESCARTES, "Discourse on the Method of Rightly Conducting the Reason", in: *Discourse on Method and Meditations*, Mineola, NY: Dover 2003, pp. 1–52.

46 Bruno LATOUR, "How to Be Iconophilic in Art, Science and Religion?", in: Caroline A. JONES – Peter GALISON (eds.), *Picturing Science, Producing Art*, London: Routledge 1998, pp. 424–427.

47 The understanding of aesthetic experience as parallel register of comprehension goes down to Alexander Gottlieb Baumgarten's *Aesthetica* (1750). See Donald PREZIOSI, *The Art of Art History*, Oxford: Oxford University Press 2009, p. 55.

48 This operation resembles the one executed by Meillassoux – what was formerly thought of as the incapacity of mind has been put into objects themselves. See Section 2. For more detail on the evolution of human cognitive structures, see Gerd GIGERENZER – Reinhard SELTEN, "Rethinking Rationality", in: *Eidem* (eds.), *Bounded Rationality: The Adaptive Toolbox*, Cambridge, MA: MIT Press 2001, pp. 1–13.

Following the line of Whitehead's idea of subject-as-superject, Shaviro claims that "the aesthetic subject does not impose its forms upon an otherwise chaotic outside world. Rather, this subject is itself informed by the world outside, a world that (in the words of Wallace Stevens) 'fills the being before the mind can think'."**51** According to Whitehead, since the subject is not a stable entity, but rather emerges from the flux of affections/experiences, one ought to acknowledge its essentially procedural nature. The individual subject together with its species rationality is always a work in progress. Rationality is therefore also subjected to change as the hard-wired principles of composition of the categories through which the world is understood are contested, while being exposed to new or uncanny objects and events. What starts out as an aesthetic encounter can transform into a progressive addition to the corpus of principles of reasoning. From this point of view, aesthetics studies dynamics of rationality, and aesthetic experience provides the evolutionary procedure of rationality and continuous attempt to its progressive development. Let me clarify now the link between aesthetic experience and rationality.

How can such a genetic procedure be possible? Meillassoux offers a clue in his account of facticity. We can think here of the correlation between objects and the forms of their comprehension by the human subject, but such forms are contingent, so there is no reason why they could not change. This means that the forms of understanding are subjected to evolution, and that this evolution does not necessarily follow any conceivable laws (despite the possibility of some retrospective inference, as in Kantian teleological judgements or perhaps in evolutionary biology). On top of that, we can consider how the evolution of human species in a complex and uncertain environment shaped the basic heuristic patterns of decision-making, as

49 Alfred North WHITEHEAD, *Process and Reality: An Essay in Cosmology*, New York: Free Press 1978, pp. 29, 88.

50 The same holds for Mikhail M. Bakhtin's idea of cosmic terror: "we are never ourselves without the Other, as we are constituted by it." Mikhail BAKHTIN, *Toward a Philosophy of the Act*, Austin: University of Texas Press 1993, p. 2, quoted by Angela Last who elaborates: "At the same time, we are unique, each of us being the product of different kinds of co-constitutions. This difference, but simultaneous intra-relation, represents Bakhtin's dialogue – a struggle we become involved in when we encounter another person or entity, which, in turn has been affected by others. It is a mutual transformation we cannot escape from, a continuous struggle with new concepts formed by the multitude of negotiations of relations across space and time." Angela LAST, "Negotiating the Inhuman: Bakhtin, Materiality and the Instrumentalization of Climate Change", *Theory, Culture & Society*, Vol. 30, 2013, No. 2, p. 62.

51 SHAVIRO, *Without Criteria*, p. 13.

52 GIGERENZER–SELTEN, "Rethinking Rationality", p. 1.

well as cognition – broadly speaking. Regarding our attention or basic emotional responses to previously unknown individuals, for example, these processes are governed by heuristic rules of thumb that convey the historical imprint of environments where the human species lived through the majority of its existence.**52**

To speak in Kantian terms, the faculties of human reason are not pre-determined by means of reason's own internal structuration, but this pre-determination is a consequence of the influence other objects exercise on us. Consequently, our own mode of comprehending reality is not just ours. It is simultaneously an imprint of alien forces imposing certain effects upon the evolution of the human species. Given the effect of the structuration of human rationality on the level of the species (rather than the individual), one can distinguish this position from mere empiricism, which is understood as the epistemological theory that the *contents* of human cognition are the effect of external objects. Except that we are not dealing with contents here, but with the architecture of the system where the concepts subsequently occur.

Thus – at least as a species – we were "taught" to reason and to perceive by objects. To paraphrase Kant's annunciation of the Copernican Revolution, objects recognise in the subject what they invest in it according to their own plan; a twisted version indeed of the much-hated correlationism. Moreover, if we were taught to think by objects, it is legitimate to endow them with some form of rationality, albeit alien to us. In terms of evolutionary dynamics, we must acknowledge the hybridisation of rational and xenorational, as far as xenorationality is invested in the rational subject and subsequently rationality in the xenorational object. Similarly, regarding evolutionary dynamics, we should recognise the *ancestral* origin of the aforementioned hybridization – since the human species is confronted

with *ancestral realities* (i.e., preceding the emergence of embodied subjectivity in time, such as terrestrial ecosystems),**53** subjective rationality can be seen as a distorted version of objective xenorationality invested in the subject beforehand. Once again: objects – especially ancestral objects – originally taught us the controversies that baffle the human mind. It is inevitable to call this alien investment in human cognition xeno*rationality*. If rationality is composed of such non-human features, the original entity imposing these features upon human cognition must naturally be *rational* as well, but strangely so – hence *xeno*rational.

This approach is based upon a Latourian presupposition. In sociology and anthropology, the work of Latour famously turned the attention away from social relations, and redirected it towards those relations that actually give the social world its definite endurance. He rules out the concept of the *social* understood as the special kind of stuff that somehow substantially differs from material or natural relations (as is the case with, e.g., Émile Durkheim or social constructivism), insisting that non-human objects are responsible for holding social reality together.**54** In this respect, social becomes *a-social* – the realm of manifold associations.**55** The social is always being composed and never fully accomplished – it is a continuous becoming, to put it in Deleuze's words.**56** Such a complex social reality makes it possible to include non-humans in our collectivities, since they must be recognised as crucial contributors to the persistence of any form of sociality. It means that any social, economic, artistic or political practice must openly acknowledge non-humans as its structural precondition. Trains, bikes, glasses, deer, microbes, dresses, smartphones, AI, animals, ecosystems, hurricanes, volcanoes and so on, are autonomous and legitimate actors in all these respects. Moreover, the agency is always collective rather than individual – any time you contemplate an activity, you

53 See MEILLASSOUX, *After Finitude*, p. 10.

54 LATOUR, *Reassembling the Social*, pp. 5, 71.

55 *Ibid*., p. 47.

56 DELEUZE – GUATTARI, *Thousand Plateaus*, pp. 233–234.

must realise the tremendous network of infrastructures and activities that precede it and allow it to actually take place. To illustrate, imagine a pizza driver – a successful delivery presupposes a fabric of communication networks, an online order system with all its human add-ons in the form of IT developers, graphic designers or content editors, logistics of oil supply for the motorbike, a city road infrastructure and so on.

It is possible to apply the Latourian presupposition to aesthetics.**57** If non-humans partake in all our social practices, the same holds for any aesthetic practice. For example, the genuine sociality of art is acknowledged in Dickie's definition of art**58** and possibly earlier. Informed by Latourian presupposition, however, we are further allowed to extend the range of artistic agency to non-humans both as leads and supporting characters. If, for the sake of this argument, we accept that aesthetics is at least partly concerned with artistic production, we can think legitimately of non-human art – xenorational art.

Now, it can be further argued that as far as

1) reason is not a faculty exclusive to the human subject (the Latourian presupposition) and
2) human reason is the outcome of investment from ancestral and exterior entities (the genetics of rationality),

we can establish xenorationality as the term for those forms of reason alien to the human subject which can be met in allusive aesthetic encounters. As mentioned earlier, such an aesthetic experience stands in opposition to intellectual cognition, since it is partial and sensational – it gives rise to manifold speculative conjectures, rather than precise, authoritative knowledge.**59** Recall our discussion of Meillassoux here: every entity instantiates some principles of composition, even if completely contingent.

57 LATOUR, "How to Be Iconophilic", pp. 418–440.

58 George DICKIE, "What is Art? An Institutional Analysis", in: *Art and the Aesthetic: An Institutional Analysis*, Ithaca, NY: Cornell University Press 1974, pp. 19–52.

59 SHAVIRO, *Without Criteria*, pp. 2, 9. Concerning allusion, see Graham HARMAN, *The Quadruple Object*, Winchester: Zero Books 2011, e-book, location 216.

Those can be acknowledged by human beings in aesthetic encounters with objects that instantiate them. Such encounters consist precisely in the act of recognition of these principles instantiated by the entity, without being fully understood and operationalised.

4. Frontiers of Cognitive Mapping: The Manifestations of Xenorationality

Nowadays, we are increasingly aware of living in a world where we are confronted daily by immense entities that govern both our practice and our thinking, without us being able to grasp them in their totality. For this reason, several authors propose to focus on special operations that can give us a somewhat better comprehension of these entities. Nick Srnicek, with reference to Fredric Jameson's theory, calls these practices *cognitive mapping*.**60** Such practices are developed in order "to enable a situational representation on the part of the individual subject to that vaster and properly unrepresentable totality which is the ensemble of society's structures as a whole".**61** In other words, cognitive mapping is the means of comprehending immensely complex entities, and in this respect, it represents the practice of deliberate facilitation of the genetics of xenorationality on both the individual and the collective level, because it mediates alien principles of association and makes them manifest in a manner adequate to human comprehension.

The most notorious practice of cognitive mapping is visualisation.**62** Guided by Latourian presuppositions and the account of genetics of xenorationality, we now move on to consider potential applications of visualising practices of cognitive mapping governed by xenorational aesthetics on particular cases of non-human agencies. As introduced

60 SRNICEK, "Navigating Neoliberalism".

61 Fredric JAMESON, *Postmodernism: Or, the Cultural Logic of Late Capitalism*, Durham, NC: Duke University Press 1991, p. 51.

62 SRNICEK, "Navigating Neoliberalism", pp. 5, 8–9.

63 METZ, "Sadness and Beauty".

in Section 1, this paper picks up two of them – ecosystems and artificial intelligence.

4.1 Artificial Intelligence

On 10th March 2016, Google's AlphaGo AI computing system beat the world's top Go player Lee Sedol for the second time in a row. The match highlighted the surprising move by AlphaGo which was described as "inhuman", yet at the same time "beautiful".**63** The move was initially assessed by onlookers as a mistake, yet it got Lee Sedol into quite some trouble, since he was unsure how to respond to such an unprecedented shift in his opponent's strategy. Until then, the game seemed rather balanced, but since this move, AlphaGo began to gain lead in the session. Without even grasping the complexity of its strategy by humans watching the game, the machine claimed a decisive victory. Human players were astonished by this confrontation with radical otherness, wholly objective and external.

In this unprecedented move during the Go session, AlphaGo instantiated – or perhaps *visualised* – its xenorationality. The principles AI employed in order to comprehend the game (e.g., complex algorithmic procedures of deep machine learning) were obviously alien to the human mode of perceiving and reasoning. Since in terms of SR, we need to approach AlphaGo as an autonomous object, the computer algorithm comprehended the game in its particular, alien way. Drawing on the exposition of aesthetics in Section 3, I claim that experiences such as those of watching a machine mastering a game with uncanny perfection are the moments of aesthetic encounters with an autonomous, xenorational entity. Employing the framework of xenorationality grounded in Meillassoux's SR theory, aesthetics can study these encounters with great precision. AI aesthetics then turns into a research of the capacities of computing systems possessing AI to affect us by way of shaping

and reshaping the ordinary assemblages according to their own xenorational plans.

Hence, aesthetic encounters mediated by visual cognitive maps can inform us about AI's principles of association in order to prepare individuals and societies to negotiate ways it can influence them and vice versa. Srnicek lists practices such as glitch art, retro 8bit graphics, information visualization and so on.**64** Just as death and horror (which are inherently incomprehensible) can be indirectly experienced (e.g., in Goya's painting of Saturn digesting human body), the alien xenorationality of AI is comprehended once it is instantiated in aesthetic experience. Given the insights from these encounters, we can draft cognitive maps of AI's complex agencies that can structure our future approach to ethical and (geo)political consequences of the emergence of artificially intelligent systems, from the art of AI through ethics of self-driving cars to AI systems of economic organization.**65** The site of these negotiations is the aesthetic – the realm of material compositions; meanwhile, the kernel of such negotiations lies in designing environments where the behaviour of AIs and humans frictionlessly aligns and accommodates to the other and does not clash or cripple. As Benjamin Bratton remarks, this

> project entails an acceleration from the initial recognition of local planetary economics toward a more universal recombinancy for which the political and aesthetic representations of human experience are tilted off-center [Latourian presupposition, note by LL]. From that outside looking back in, the generative alienations brought about by potential xenopolitics, xenoaesthetics, xenoarchitectonics, xenotechnics, and so on, turn back upon the now inside-out geopolitical aesthetic for which the relevance of human polities (human art, human experience) seems weird and conditional. How might we

64 SRNICEK, "Navigating Neoliberalism", p. 8.

65 BRATTON, *Stack*, pp. 185–186, 225–226, 277–279.

> grope toward an inventory of these contingencies [recall Meillassoux, note by LL]? What index of effects would allow us to read this situation even as it is unresolved and perhaps unresolvable for us?**66**

The point of such geopolitical negotiations is in triangulating conditions of existence and flourishing between humans, AIs and their hybrid collectives of (non-)humans. The range of possible outcomes of human-AI interactions lies in the zone of the transfinite. For this reason, we are implacably alienated from AI. They are extraneous entities operating in the universe of deep and structural contingency (recall Meillassoux again), and thus complementary aesthetic strategies for resolving such problems need to be always at our disposal.

4.2 Ecological Emergency

Nowadays, anthropogenic climate change is the greatest threat to the planetary ecosystem as we know it. The regenerative and recuperative capabilities of this precious web of life go well beyond any conceivable history of human socio-economic assemblages;**67** still, they can be severely affected and substantially transformed by this period of excessive human activity, fuelled by carbon-intensive industrial production and distribution, water and air pollution or breakdown of the rainforests and Arctic ecosystems.**68** We live in the times of ecological emergency.**69** *Anthropocene* – the geological epoch in which humans play a major role in shaping global and long-term patterns of ecosystem behaviour – stands as a label for this disruptive era.**70**

However, the picture becomes complicated once we question the actual contribution of human agency to climate change. First, it seems utterly unjust to attribute the same level of responsibility for the ecological crisis to a middle-class citizen of the United States and to an

66 BRATTON, "Some Trace Effects".

67 Crawford Stanley HOLLING, "The Resilience of Terrestrial Ecosystems: Local Surprise and Global Change", in: W. C. CLARK – R. E. MUNN (eds.), *Sustainable Development of the Biosphere*, Cambridge: Cambridge University Press 1986, pp. 306–307.

68 IPCC, "Summary for Policymakers", in: Thomas F. STOCKER – Dahe QIN – Gian-Kasper PLATTNER *et al.* (eds.), *Climate Change 2013: The Physical Science Basis: The Fifth Assessment Report*, Cambridge: Cambridge University Press 2013, pp. 4–12.

69 John COOK – Naomi ORESKES – Peter D. DORAN *et al.*, "Consensus on Consensus: A Synthesis of Consensus Estimates on Human-caused Global Warming", *Environmental Research Letters*, Vol. 11, 2016, No. 4, http://iopscience.iop.org/article/10.1088/1748-9326/11/4/048002/pdf (accessed 8 Nov 2016).

70 Will STEFFEN – Paul J. CRUTZEN – John R. MCNEILL, "The Anthropocene: Are Humans Now Overwhelming the Great Forces of Nature?", *Ambio*, Vol. 36, 2007, No. 8, pp. 614–621.

inhabitant of a Kolkata slum, or an Eastern-German village family on the one hand and the board of directors of Volkswagen on the other.**71** Second, following the Latourian presupposition, we need to count with non-humans in any socio-economic assemblage. As a result, it is hard to defend the Anthropocene perspective without falling into human exemptionalism and/or anthropocentrism.**72** It seems more plausible to understand the age we live in not through the proliferation of human activity *as such*, but of a specific socio-technical agency – a capitalist assemblage, understood as the progressive unfolding of capital accumulation and surplus extraction in the web of life.**73** Anthropocene mutates under such viewpoint into the "inhuman" age of *Capitalocene*.**74**

This shift in perspective can be easily supported by the Marxist imagery – *Capital* famously describes capitalism as a vampire, monster or giant automaton.**75** In capitalist logic, human actors are nothing but *dramatis personae* (*Träger*) – character masks without individual destiny and possibility of emancipation, filling structurally pre-defined slots in productive chains.**76** In "Fragment on Machines", machinery is depicted as the most adequate form of fixed capital, an alien power that performs the majority of (re-) productive labour, and humans are only mere guardians of the smooth process of accumulation.**77** Human agency is radically diminished in such a mode of technologically developed industrial capitalism. In this overall distribution of agency, humans are challenged by inescapable imperatives of blind forces of production, and the disciplination as well as supersession of such daunting machinery is possible only if it is initially recognised as an aesthetic encounter. Only then can we cognitively map, and manipulate, the capitalist assemblage.

Even this line of thought can be further extended. Donna Haraway points out that we have ultimately reached the times when the primary actors of environmental and geological change are nothing but forces monstrously bigger

71 Andreas MALM, *Fossil Capital*, London: Verso 2015.

72 Human exeptionalism is "the notion that human beings were exempt, due to technology, from environmental constraints." See John Bellamy FOSTER, "The Planetary Rift and the New Human Exemptionalism: A Political-Economic Critique of Ecological Modernization Theory", *Organization & Environment*, Vol. 25, 2012, No. 3, p. 212.

73 Jason W. MOORE, *Capitalism in the Web of Life*, London: Verso 2015, p. 25.

74 Andreas MALM, *Fossil Capital*, London: Verso 2015.

75 Karl MARX, *Capital. Volume 1* (1867), London: Penguin 1990, p. 91.

76 *Ibid.*, p. 92.

77 Karl MARX, "Fragment on Machines" (1858), in: Armen AVANESSIAN – Robin MACKAY (eds.), *#Accelerate: The Accelerationist Reader*, Falmouth: Urbanomic 2014, p. 53.

than us, and they are prepared to execute a cruel revenge on the human species if it does not accommodate to the limits set by these godlike forces.**78** These chthonic forces are the earthly counterparts of fictional gods from the horror stories of H. P. Lovecraft's *Cthulhu* mythos.**79** Ocean water and atmospheric streams; food-chains; cycles of water, CO_2 or methane, regulatory mechanisms of marine ecosystems and so on: those are the only real planetary actors. Operating beyond the exhaustive grasp of human cognition, we are left with aesthetic allusion as the only way of aligning the efforts of earthlings with the unpredictable, an indeed mad forces of the universe. Thinking *with* nature and understanding aliens appear to be strongly similar tasks.

Here the idea of cognitive mapping comes up again – aesthetic experience of chthonic forces gives us the framework to seek for ecologically sensitive alternatives to the capitalist civilisation of infinite excess. Instead of focusing on human perception of time (the Kantian *a priori* condition of sensibility), we must think in intentions of *geological time*. This can happen, for example, by means of a live visualization of satellite data crunched by supercomputers.**80** Another aesthetic strategy could be an intense visualization of geological time or non-human gaze from nowhere, employed, for example, in works of Trevor Paglen, Justin Brice Guariglia or Murat Akagunduz.**81** The *polis* of either Anthropocene, Capitalocene or even *Chthulucene* is overpopulated with non-human entities that organise the ecosystem and constrain our socio-political practices according to their own needs. Any conceivable design of post-capitalist future governed by the lessons of ecological crisis needs to count with the primary role of xenorational entities, and the aesthetic encounter represents here the pivotal sphere of access to the political interests of non-human forms of life or existence in general.

78 Donna HARAWAY, "Tentacular Thinking: Anthropocene, Capitalocene, Chthulucene", *e-flux journal*, 2016, No. 75, http://www.e-flux.com/journal/75//67125/tentacular-thinking-anthropocene-capitalocene-chthulucene/ (accessed 11 Nov 2016).

79 Howard Phillips LOVECRAFT, "The Call of Cthulhu", *Weird Tales*, February 1928, https://en.wikisource.org/wiki/The_Call_of_Cthulhu (accessed 12 Nov 2016).

80 Cameron BECCARIO, *Earth*, https://earth.nullschool.net (accessed 11 Nov 2016).

81 Trevor PAGLEN, Portfolio, http://www.paglen.com/?l=work (accessed 12 Nov 2016); Justin Brice GUARIGLIA, Portfolio, http://guariglia.com/ (accessed 12 Nov 2016); Murat AKAGÜNDÜZ, *Kef Serisi*, http://www.muratakagunduz.com/blank-4 (accessed 12 Nov 2016).

5. Summary

The argument presented here is that the aesthetics of xenorationality fits the purpose of studying aesthetic effects produced by non-humans, such as machines or ecosystems. These aesthetic effects, however, merit a close inspection even when the human audience is entirely absent. Beyond this paper, perhaps in future studies, we ought to investigate the aesthetic effects non-humans exchange between themselves as the human gaze is effectively bracketed off. A picture of *post-human aesthetics* emerges here, a more cogent encapsulation of xenorational aesthetics, perhaps. Rational discourse about *ancestral aesthetics***82** is also possible. Art and aesthetics, as well as philosophy, provide both the tools for exploring these foreign territories and the precedents and reasons to support speculative endeavours. Aesthetics thus turns into a speculative endeavour discovering the transfinite set(s) of possibilities.

Lastly, despite aesthetic experience as such being disinterested, it can have very political consequences. Since it repeatedly confronts us with sovereign principles that supersede our ephemeral subjectivities, it forces us to adapt our actions to our partial comprehension of these principles, and avoid material settings that lead to risky or harmful behaviour if the objects can potentially strike back. The omnipresence of xenorational entities is the general feature of social, economic and political life and deliberation in the age of ecological emergency. For this reason, the paper sees cognitive mapping governed by xenorational aesthetics as an indispensable component of socio-political practices in the Anthropocene.

82 That is aesthetics concerning Meillassoux's ancestral realities (see Section 2).