Speculative Enquiries

The third annual conference of the European Culture and Technology Laboratory.

Connell Vaughan
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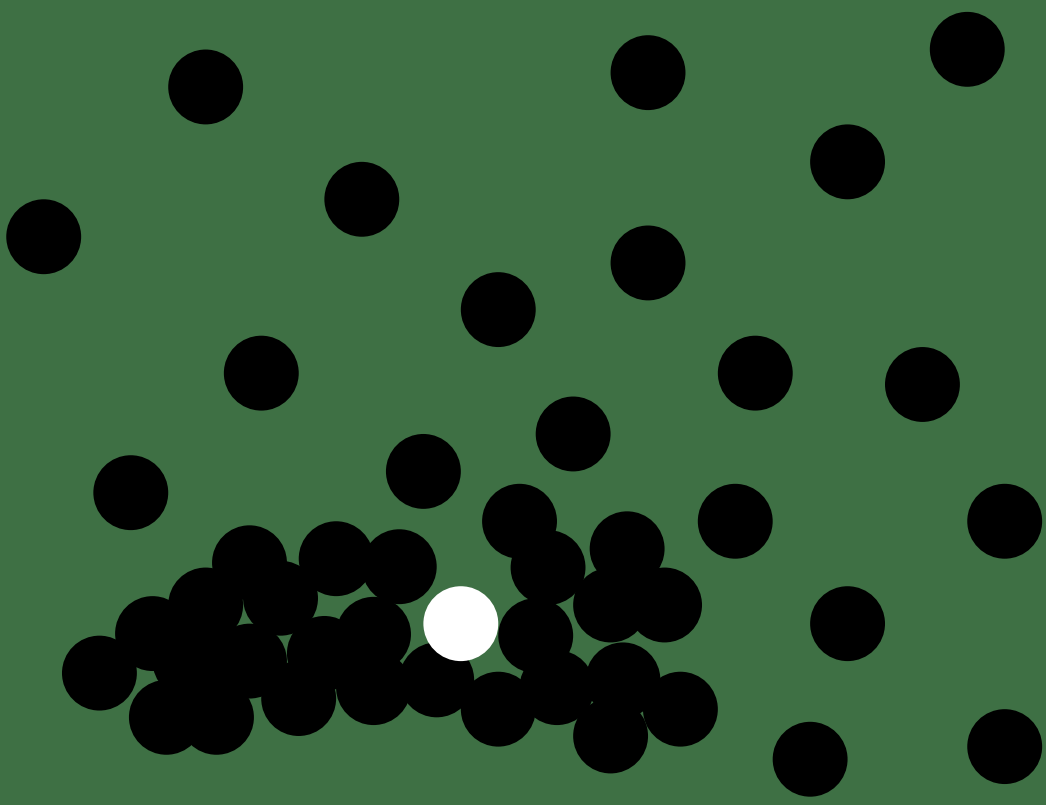

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Contents

Introduction to ECT Lab+ Proceedings 2023

Dr Connell Vaughan

Lecturer in Aesthetics and Cultural Policy, School of Art and Design, Technological University Dublin, ECT Lab+ ERI of EUt+

Dr Marinos Koutsomichalis

Assistant Professor in Creative Multimedia, Department of Multimedia and Graphic Arts, School of Fine and Applied Arts, Cyprus University of Technology, ECT Lab+ ERI of EUt+

Preface

The European Culture and Technology Lab (ECT Lab+) is part of the European University of Technology (EUt+) which commenced in 2020 and is funded by the European Universities Initiative. The EUt+ brings together nine universities, Cyprus University of Technology, Darmstadt University of Applied Sciences, Riga Technical University, Technological University Dublin, Technical University of Sofia, Universidad Politécnica de Cartagena, Université de technologie de Troyes, Universitatea Tehnică din Cluj-Napoca and Università degli Studi di Cassino e del Lazio Meridionale in nine EU countries Bulgaria, Cyprus, France, Germany, Ireland, Latvia, Romania, Italy and Spain, and works across all languages spoken in these countries.

The ECT Lab+ was formally set up in Cluj-Napoca Romania in February 2020 as the first pan- European Research Institute to focus on questions of technology and society. The ECT Lab+ was formally established as a pan-European Research Institute (ERI) in February 2023. The ECT Lab+ poses questions about the relation between culture and technology, the emerging environments (or

milieux) of technology which are cultural, cosmological, technical, social, economic, and political. Following on from the recent material turn in philosophy of technology, the ECT Lab+ conceives of technology as part and parcel of the process and practices of becoming human in the world. The ECT Lab+ brings together researchers who are interested in the impacts of technology on society, these impacts can be both positive and negative; this we can term a pharmacology. This emerging research environment could be considered as a study of evolution, a history of technical organs; this we can term a general organology.

Hence the title of the ECT Lab+ reflects the positioning of technology within a culture, acknowledging that technology is not built in a vacuum but in and for society. The second aspect of the cultural environment of technology stems from the philosophical positioning of technics, technē and technology within their cultural locality or milieu. The ECT Lab+, therefore, encourages research which recognises the localised and situated knowledge contexts of technological innovation. The Lab promotes a concept of technē which enables a broad definition of technology; technē includes the ancient Greek etymologies of all forms of practice, arts and mediations which are not restricted to technē as instrument or tool but an understanding of technē as co-evolutive practice in the contemporary world. The ECT Lab+ acts as a metastable structure, which is akin to supersaturation, a crystallising that can occur in relation around certain thematics, for example technological foresight and responsibility or epistemology, ethics and artificial intelligence. The ECT Lab+ considers the instability of the milieu (locality) and allows for the undecidability, contingency or indeterminacy of the cultural environment of technology or technological tendencies.

Figure 0.1: Speculative Enquiries conference poster 2023, designed by Anastasia Melandinou

Introduction: Speculative Enquiries

Yesterday is mystery
Where it is Today
While we shrewdly speculate
Flutter both away (Emily Dickenson, 1830-1886)

The third annual conference of the ECT Lab+ was held over three days in November 2023 in Limassol at the Media Arts & Design Research Lab (MADLab), Cyprus University of Technology. The conference brought together experts from the Arts, Humanities, Social Sciences, Technology, and other fields to explore ways of enquiry[1] that enrich (non-)positivist ways of knowing as well as post-structuralist critique towards them. Given the political, representative and epistemic crises of the current times, there is a need for transdisciplinary responses to overcome siloed thinking of academic fields of study and offer solutions by revisiting questions of speculation as the basis of science, engineering, education, design and the arts. Under the title *Speculative Enquiries: Aesthetic, Ethical, and Epistemic Technologies*, the conference reflected on speculation as an analytical, imaginative, political and experimental means and intended to inspire the production of artifacts (engineering, design, arts, crafts) to get beyond the current epistemic *Krisis*.

Coining the term 'risk society' to describe modernity's preoccupation with future risks, Ulrich Beck (alongside Anthony Giddens) pointed to the current ubiquity of speculation: 'The risk society marks the dawning of a *speculative* age in everyday perception and thought.'[2] Accordingly, the third annual conference of the ECT Lab+ revolves around speculation tactics and ways of enquiry *vis-à-vis* an ongoing epistemic/epistemological *Krisis* and commencing on theoretical, empirical, and analytical standpoints. Speculation is far from merely a device to alternative/non-positivist ways of enquiry; it rather sits at the centre of societies that on one hand rely a lot on (and often sanctify) science and technology while on the other are severely constrained by economical and political fluctuations. Speculation then becomes the main means to look into (and thus anticipate) the future so as to stabilise the present. Our focus is both on the ethical and political implications as well as on how speculative strategies and tactics may fuel novel ways to make sense of the world we live in (and the world we will live in).

1 A note on spelling: in this introduction we use enquiry instead of inquiry. The latter is commonly distinguished from the former as referring to formal and official investigations as opposed to more general requests. While not dismissing the value of inquiries, the transdisciplinary variety of the conference is, we believe, better reflected by the use of enquiries.

2 Beck, Ulrich (1992) *Risk Society: Towards a New Modernity*. Translated by Ritter, Mark. London: Sage Publications, 73.

As such, this conference, premised on the idea that speculation is a way of thinking between reason and unreason with far reaching contemporary currency, connected research across a variety of disciplines, ranging from speculative fiction to urban design.

Where the first conference was an online event and the second conference was practically a hybrid affair, this edition was closer to pre-pandemic normality in its format. A total of 35 speakers presented their work over the course of the conference cocooned in the critical yet convivial atmosphere of the MADLab's Black Box Theatre. MADLab (that is, Media Arts & Design Research Lab) was founded in 2019 by Marinos Koutsomichalis and Doros Polydorou and organically belongs to the Department of Multimedia and Graphic Arts of the Cyprus University of Technology. MADLab was an ideal place for the event, comprising a multi-disciplinary team of artists, creative technologists, designers, theorists, and digital craftsmen who pursue situated research in a wide array of subareas in this way promoting a playful interaction between philosophy, making, arts, technology and science. MADLab closely connects the disciplines and methodologies of electronic arts, cybernetic culture, digital theatre/performance, making/hacking methodologies, animism, media archaeology, 'dark' ecology, AI and bio-inspired algorithms, VR/AR, 'alien' phenomenology, ethnography, auto ethnography, non-representational methods, post-humanities, and DIWO (Do-It-With-Others).

Capitalising on this setting Doros Polydorou ran a half day workshop as part of the conference. Entitled *Semi-Living Objects: An Intervention,* it integrated insights from Alien Phenomenology[3], Dark Ecology[4] and Viveiros de Castro's 'multinaturalism.'[5] In the workshop participants were asked to design semi-living objects as agents of intervention in a world increasingly choreographed by technology and biotech integration. Scholars such as Sherry Turkle[6] and Ian Bogost[7] have highlighted the erosion of genuine agency and unforeseen decisions in our lives. This orchestrated existence, driven by technological systems, raises concerns about the loss of spontaneity and the homogenisation of experiences. Drawing from Object-Oriented Ontology (OOO),[8] these objects, both inspired by and contributing to the essence of 'multinaturalism' and 'dark ecology', introduce a playful and unexpected dimension

3 Bogost, I. (2012) *Alien Phenomenology, or What It's Like to Be a Thing*. University of Minnesota Press.

4 Morton, T. (2016) *Dark Ecology: For a Logic of Future Coexistence*. Columbia University Press.

5 Viveiros de Castro, E. (1998) Cosmological Deixis and Amerindian Perspectivism. *Journal of the Royal Anthropological Institute* 4(3): 469–488.

6 Turkle, S. (2011) Alone Together: Why We Expect More from Technology and Less from Each Other. Basic Books.

7 Bogost, I. (2016) *Play Anything: The Pleasure of Limits, the Uses of Boredom, and the Secret of Games.* Basic Books.

8 Harman, G. (2018) *Object-Oriented Ontology: A New Theory of Everything*. Penguin.

into everyday mundane actions. Functioning as inter-object communicators, these semi-living objects act as bridges between human and non-human entities, fostering new connections in our technologically saturated world. They can manifest as symbiotic appliances seamlessly integrated into our routines or take form as auto-ecological art installations that challenge our perceptions of agency and interaction.

The seminal work of Bernard Stiegler was the point of departure for the first and second ECT Lab+ conference thematics. Drawing on a Stieglerean view of technology, we soon wished to zoom in on issues of prediction, experimentation, and fabulation vis-à-vis contemporary technologies. These surfaced in the former conferences and, we believe, are interconnected in ways much deeper and subtler than what is suggested by positivist epistemologies. Our focus coalesced on questions of speculation and enquiry due to the rich aesthetic, ethical and epistemological possibilities therein. Stieglerean *technics* provide a framework to think about technology not as a tool, but rather as a continuum whereabout humans invest/externalise internal processes (such as memory, or sense-making). Technics then set out the very constraints that define a particular (technological) culture and what can be done (or not) within it. In turn, these constraints re-formulate technics so that a dynamic multistable condition is reached. Juarrero demonstrates that it is impossible to understand complex multistable dynamic systems (like tornados, the internet, traffic congestions – pretty much everything we share the world with) by means of the strip-down Aristotelian causation delivered to us by the scientific tradition. To this end, they re-introduce context offering a framework modelled around systems that are simultaneously constrained and constraining coordination dynamics so as to give rise to self-organisation and complex phenomena. In such systems, 'coherence is knitted together by contextual constraints and is realized far from equilibrium as a flexible and dynamic equilibrium called metastability.'[9]

Speculation can be thought of as an act of foresight: technics provide us with the means to store information for future reference and speculation becomes the activity to (try to) anticipate and shape the course of future events in advance drawing on the former. Technics enable us to speculate about the future by providing us with the means to process, store, and transmit information and cultural content so as to forecast trends – that is, from a Stieglerean point of view, techno-scientific speculation can be seen as a form of enhanced imagination that explores what is more or less possible within certain contextual constraints. Recognizing that speculation as such is a tool of

9 Juarrero, Alissa (2023) *Context Changes Everything: How Constraints Create Coherence*. MIT Press, 19.

imagination that can be used in religious, philosophical, politico-economic, aesthetic, educational and other contexts, the third ECT Lab+ conference sought to make connections across disciplinary divides on the nature of speculative enquiry and to foreground it as an activity that often seeks to transcend those divides.

As a technological enterprise and critical prosthesis, speculation is an advanced human activity. While it concerns the future, it does have a history of its own – one that goes in tandem, and often overlaps, with the development of the scientific method and positivist epistemologies. Though the term has its roots in the Latin term *speculum*, which meant mirror and reflection, it soon developed other meanings. Rogers, for example, highlights[10] an early and fundamental distinction from Augustine, between *Speculatio* (the philosophical projection exemplified by the watchtower) and *Speculum* (the religious introspection associated with the mirror) at the heart of speculation. Colloquially understood as guessing, in economics speculation suggests trading and investment and in philosophy it connotes a special form of thinking. From Giambattista Vico's[11] Enlightenment era contrast of speculation to reflection, to philosophers such as Kant, Hegel and Adorno, 'futurists' such as Alfred Toffler and the so-called 'Speculative Realists',[12] there is a long tradition of privileging speculation as a special epistemological form and a fundamental philosophical activity (dialectic) where thinking and imagination are more important than observation, action and even argumentation. Arguably, such epistemologies often share the very same principles with practices that claim no epistemological legitimacy (and are generally not associated with one), such as science fiction, comics, popular cinema, and storytelling in general.

In this history we also find, as we did with the concept and practices of care in the previous conference, that speculation can be a pharmacological concept so that we could draw a line between 'good' and 'bad' speculation. The late Marina Vishmidt argued that in the 21st century speculation is productive and drew 'a parallel between contemporary capital and contemporary art as they [have] come to constitute the poles of a society structured around speculation'[13] In both domains, art and economics, speculation can be pro-social or simply instrumentally productive in the service of the reproduction and expansion of market logics. The latter is perhaps best exemplified by the recent speculative

10 Rogers, Gayle (2021) *Speculation A Cultural History from Aristotle to AI*. Columbia University Press, 10.

11 Goetsch, James Robert (1995) Vico's Speculative Geometry of the Civil World. *The Journal of Speculative Philosophy* 9(4): 279–295

12 See for example, Johns, Charles William (2023) *Hegel and Speculative Realism*. Palgrave MacMillan.

13 Vishmidt, Marina (2018) *Speculation as a Mode of Production: Forms of Value Subjectivity in Art and Capital. Brill*, viii.

scams that are the tokens of hype known as non-fungible tokens (NF's). Replete with illusory demand their value could only ever be speculative and the bubble will inevitably pop. Moreover, there is of course also something dangerously conspiratorial in speculation. Where information is withheld, as in the case of the JFK assassination, speculation abounds. Accordingly, the critical challenge of our times is to consider how can we affirmatively speculate alternative possibilities.

Where research may be past and present orientated, speculative enquiry is fundamentally linked to making claims about the future; in fact, another way of writing speculation is: 'future as...' Implicitly, this links speculative tactics to cultural and philosophical understandings of time. A linear 'arrow of time' suggests that speculation has the ability to both rewrite the future (since it is fuelled by present-day dynamics) as well as be critical of taken-for-granted futures. In the words of Jen Ross:

> a speculative approach works with the future as a space of uncertainty, and uses that uncertainty creatively in the present. [Accordingly] Speculative pedagogies, [...] tend to centre emergence, creative experimentation and open-endedness. In both research and teaching, speculative approaches reject the articulation of best practice, and the production of predictions, in favour of an orientation to the future that plays with tensions between groundedness, unfamiliarity, responsibility and risk.[14]

In contrast, when Ronald Reagan was running for governor of California in 1967 he notoriously declared that 'the state should not subsidize intellectual curiosity'[15] and his victory and subsequent policies for higher education marked a shift in many countries towards the liberalisation, marketisation and economic instrumentalisation of the sector. In this we can see how in contemporary society the financial speculation of the investor is privileged over the reflective speculation of the learner.

So, within the very same linear conceptualisation of time we encounter two qualitatively different forms of speculation: one as a higher cognitive activity and another as the means to extract profit from property. This exemplifies speculation as an instrument in-between politics and the fundamental assumptions about reality, time, and the fabric of society. Different fundamental assumptions, e.g., a circular view of time as often encountered in cultures of the far East or maybe eschatological conceptualisations thereof with respect to religious contexts, lead to very different kinds of speculation. The fundamental political aspect is still the same, nevertheless: who has the freedom to speculate and whose speculations have the privilege to be taken seriously? As the financial crash of 2008 made clear, not everyone will get a bailout if their speculation does not recoup. In reality, some get to speculate while others are the subject of the former's speculation. In the eighteenth century, for example, daughters were regularly considered as 'marriage speculations', while colonial enterprises, such as the South See Bubble, Tulip Mania and the Mississippi Bubble were all characterised by a frenzy of wild speculation that led to general stock-market booms and busts across Europe. Equally revealing is the fact that the French empire called its colonies 'speculations'.

Likewise, in an age of 'speculative urbanisation',[16] where economic growth is tied to the expansion of the city, sectors such as housing are increasingly conceived in terms of instrumental and financial speculation. This is so prevalent that today it could be argued that housing is primarily regarded as a speculative investment. Here risk is quantified, contained and parsed to

14 Ross, Jen (2023) *Digital Futures for Learning Speculative Methods and Pedagogies*. Routledge, 13.

15 Berrett, Dan (2015) The Day the Purpose of College Changed aAfter February 28, 1967, the main reason to go was to get a job. *The Chronicle of Higher Education* January 26. https://www.chronicle.com/article/the-day-the-purpose-of-college-changed/

16 See Chu, Cecilia L. and He, Shenjing (eds) (2022) *The Speculative City: Emergent Forms and Norms of the Built Environment*. University of Toronto Press.

extract profit solely for investors. Similarly, the art object can be instrumentalised speculatively in the sense of philosophical reflection or economic investment or both. The formlessness suggested by speculation is appealing to artists and property developers alike. Considering Ed Ruscha's *Thirtyfour Parking Lots* (1967), Susanna Phillips Newbury writes that in such work 'the technical images' promotion of surface attention over deep reading, [...] evidence a speculative outlook on the city as a collection of bare real estate opportunities'.[17]

All too often, and this was a recurring theme acknowledged in many conference presentations, we can lose sight of the embodied role of speculation. Where generative AI has an awesome capacity for prediction, speculation remains an embodied activity with reference to a particular object of study. That is, we can only talk of speculation with respect to some particular context. In this volume we are primarily concerned with Speculation vis-à-vis Enquiry. That is, with speculative strategies and speculative tactics that set out ways of enquiry. Like speculation, enquiry has its own particular history. As a common *topos* to Western science and philosophy, its association with rational investigation originates in the Pre-Socratic philosophers who first dismissed belief and superstition (*mythos*) as a way to make sense of the world around them, instead emphasising logic (*logos*) as the means to enquire into the essence and nature of reality. Yet, older, pre-historic, ways of enquiry are broad enough to encompass non-logical speculation. For instance, Lambros Malafouris[18] argues that prehistoric paintings such as those in the Blombos Cave are instances of their makers enquiring sight and the then nascent realms of imagery and visual representation.

Succeeding the Pre-Socratics, Socrates (via Plato) makes *in-vivo* investigations of ethics the primary focus and utilises discourse as his main apparatus of enquiry to elucidate the universal and eternal essence of not merely the physical world but also of justice, knowledge, truth, virtue, beauty, love, etc. This shift already describes the process of enquiry as being both a method and a directional activity: A enquires B by means of X, where of course A, B, X need not be entities but could as well be research groups comprising humans (and even AI), related phenomena/objects or systems, and vectors of tactics, respectively. Where Socrates directed his method of enquiry to an ideal world of universal and eternal essences, Aristotle dismissed the idea that such ideals exist and instead pinpointed embodied substances, that is (in)formed matter, form/matter hybrids.

Critical enquiry remained governed by a *priori* reasoning

17 Newbury, Susanna Phillips (2021) *The Speculative City: Art Real Estate and the Making of Global Los Angeles*. University of Minnesota Press, 43.

18 Malafouris, L. (2013) *How Things Shape the Mind: A Theory of Material Engagement*. Cambridge, CA: MIT Press.

until Bacon's *Novum Organum* (1620) set the foundations of the scientific method, a form of induction where general conclusions are inferred from observations. At the core of the scientific method of enquiry we again find speculation. Inductively, one starts here from observations, speculates on the kind of phenomena or 'laws' that could govern the observed behaviours so as to formulate hypotheses, and proceed experimentally to either confirm or refute the latter. More often than not, further such iterations are necessary for successful theory to be produced. Such a method of enquiry can be also thought of as a machine for speculation in that it allows one to develop predictions about the future. The *mythos* of science is that those predictions about the future accurately predict the future. For example, Newton's laws of thermodynamics allegedly allow us to accurately predict the temperature in some point in space and time given current conditions, while, in a similar fashion, his laws of motion allow us to predict where an object will be in some future time. In this paradigm, tools such as the astrolabe, the map and compass, and thermometer stand for beacons of knowledge and become the embodiment of speculative enquiry.

Advancements in technology led to an increased reliance on different aspects of the scientific method. New, more accurate and more precise apparatuses have led to serious advancements in experimental techniques, thus accounting for a more experiment-driven kind of science, seeking to test speculations against indisputable empirical evidence and resulting not merely in theories to explain some phenomenon but also in the means to re-create it. Advances in mathematics and computing brought forth machines of speculation of a very different kind: models, mathematical formulations that can be computer simulated so as to virtually actualise (real-life) phenomena and allow us to predict their future behaviour under different initial conditions. They allow our enquiries to postulate entirely fictional systems and their outputs.

More recently, we have witnessed what is often understood as an entirely new and less embodied paradigm for science.[19] This is a kind of data-driven science revolving around amounts of observation so massive that no human alone can ever comprehend or analyse. The enquiries of contemporary scientists are often limited to designing, calibrating, and maintaining the technological infrastructures that produce, store, and make sense of data. They rely on machines running sophisticated statistical techniques and machine learning algorithms to extrapolate patterns and correlations. Unlike traditional theories and computational models, what a complex 'machine learning' system extrapolates is not the

19 Kitchin, R. (2014) Big Data, New Epistemologies and Paradigm Shifts. *Big Data & Society* 1(1): 1–12.

kind of 'knowledge' we have been used to. More often than not it explains little about the inner workings of the phenomena it studies, or more precisely, it does not say anything that would make sense to a human. The production of even more kinds of machines for speculation has empowered a new *mythos* of epistemological control. Generative AI will allegedly generate on demand accurate content of all sorts while Predictive AI will tell us whether some certain A is good enough when seen with respect to B (e.g. whether A has valid chances to pay off his mortgage or not) and as such the future is already played out.

We find throughout that speculation is at the core of the scientific enquiry, both as an integral part of the method and as a very privileged object of it. A speculative enquiry is one that is not only satisfied with the study of that which doesn't ask 'what is' but rather in a spirit of praxis asks 'what if'. The question of speculation thus is one of methodology and the route to truth. In his recent book *The Weirdness of the World*, Eric Schwitzgebel memorably declares that: 'It would just be too sad if the world had no space for speculation about wild hypotheticals.'[20] Reflecting on Schwitzgebel, Édouard Machery distinguishes between two kinds of philosophers: swallows and moles.[21] Where the philosophical swallows, like Plato apparently, love to soar enamoured with philosophical hypotheses and ideals, moles, inspired by the image of Aristotle, on the contrary, process empirical data to construct their worldviews. In this crude dichotomy we can see different research methodologies of speculation, wild speculation and procedural speculation. If the latter can be characterised as asking 'what if we continue to dig some more' then the former asks 'what if we dare to soar further'.

Where Schwitzgebel embraces the wildness of speculation, Machery tries to contain speculation in its proper place, to keep it within 'its proper bounds'.[22] In this reaction and the routine relegation of speculation as a wild, idle,[23] mere conjecture or even pointless activity, we can see the legitimacy challenge baked into speculative enquiries. While speculative enquiries may follow rigorous standards and rules, even methods, they are not completely bound by empirical evidence. As such, it is not difficult to see how from a positivist or scientist perspective that the term would come to be deployed pejoratively and approached with suspicion. As far back as 1661 the scientist Robert Boyle drew a boundary between scientific experimentation and the 'obscure'

20 Schwitzgebel, E. (2023) *The Weirdness of the World*. Princeton University Press, 73.

21 Machery, É. (2024) Entertaining Audacious Ideas Unbound by Empiricism, a Philosopher's Provocative Musings Inspire Delight and Vexation. Science 25 Jan. 383(6681): 375.

22 Machery's goal as stated in *Philosophy Within Its Proper Bounds* (Oxford University Press, 2017) is 'curbing philosophers' flights of fancy and reorienting philosophy toward more humble, but ultimately more important intellectual endeavors' (p. 1).

23 For more on the religious context of 'idle speculation' see Rogers, Gayle (2021) *Speculation: A Cultural History from Aristotle to AI*. Columbia University Press.

speculations of Alchemists.[24] Unbound by form, schools, disciplines, dogmas and doctrines, it is precisely the freedom, improvisational creativity, cognitive provisionality and productivity that makes speculation such a dangerous activity. Unbound by certainty, speculation – be it in the form of an experiment or an essay – embraces the metaphorical at the expense of the strictly empirical. While speculation can undermine all certainties, it is its ability to narrate that makes it so potent, powerful and compelling.

Speculative fictions at their best contain the ghosts (spectres) of deep truths as they transform speculation into anticipation. In this way, the parallel between their proleptic temporality and the operation of speculative financial capitalism is not incidental. For example, the 'speculative dread'[25] evoked by an episode of the television show *Black Mirror* (2011–) is more compelling than any scientific account of the consequences of technological innovation. 'Within the first decades of the twenty-first century, a loose but noticeable thread has appeared in the art critical vocabulary to describe the use of myth, fabulation, speculative fiction and cosmology in art: worldmaking' writes Vid Simoniti.[26] It is precisely the force of storytelling that Donna Haraway's 'speculative fabulation', perhaps the most heralded of recent worldmaking art practices, aims at. By approaching speculation as both theory and method, Haraway describes speculative fabulation as a 'mode of attention, a theory of history, and a practice of worlding'.[27] Speculative Fabulation, as seen in Haraway's example of the Chthulucene, an addition to the Anthropocene and the Capitalocene, is an enquiry explicitly rooted in everyday storytelling practices that embraces the defamiliarisation of inherited epistemologies and the queering of perception.

In artistic practice, speculation is explicitly about 'what if'. These fictions and fabulations can (but often don't) challenge capitalist realism, whiteness,[28] the patriarchy, etc. For every radical Afrofuturist visualisation of the future, such as Sun Ra's *Astro Black* (1972),[29] there is a *Logan's Run* (1976). Speaking to the power and politics of representation in speculative cinematic imaginaries,

24 Shapin, Steven and Schaffer, Simon (1985) *Leviathan and the Air-Pump: Hobbes, Boyle, and the Experimental Life*. Princeton University Press, 75.

25 Harvey, Giles (2016) The Speculative Dread of 'Black Mirror': Charlie Brooker's prophetic TV show explores the unintended consequences of technological innovation. *The New Yorker*, November 20.

26 Simoniti, Vid (2023) *Artists Remake the World: A Contemporary Art Manifesto*. Yale University Press, 83.

27 Haraway, Donna (2016) *Staying with the Trouble: Making Kin with the Chthulucene*. Durham, NC: Duke University Press, 230.

28 Truman, S.E. (2019) SF! Haraway's Situated Feminisms and Speculative Fabulations in English Class. *Studies in Philosophy and Education* 38: 31–42.

29 See for example Brown, Jayna (2021) *Black Utopias: Speculative Life and the Music of Other Worlds*. Durham, NC: Duke University Press.

the American comedian Richard Pryor memorably said: 'I don't like movies when they don't have no niggers in 'em. I went to see, I went to see '*Logan's Run*,' right. They had a movie of the future called '*Logan's Run*.' Ain't no niggers in it. I said, well white folks ain't planning for us to be here. That's why we gotta make movies. Then we['ll] be in the pictures.'[30] While it is too far to ascribe predictive qualities to artworks as such, for example Kafka's writing may uncannily predict Auschwitz, it is not a stretch to regard many contemporary art objects as instruments of speculation.

Since 2019 the ECT Lab+ has been exploring questions in relation to speculation about technological innovation or technological foresight. Could we speculate about the methodologies used to predict the future and specifically future technologies? The RAND cooperation became famous in the 1960's as a place where the American military attempted to foretell the technologies of the future. The methodology they have developed is based on a form of iterative questionnaires with key experts in the field (Delphi methodology). This methodology captures various key experts' opinions. However, in the ECT Lab+ we pointed to the socio-technico imaginary which is in the background context of the expert, the context (or more precisely what Simondon calls the milieu) of the expert needed to be taken into account. This involves the development of our own methodology to include forms of speculation or forms of fabulation in the technological foresight. This is something we are working on at the moment within the ECT Lab+.

Under these premises, the contributions in this volume provide the reader with critical theory on speculative enquiry and with empirical accounts on how exactly they may spawn ways of knowing, exploring, making, and crafting.

Gayle Rogers' keynote paper extends the historical analysis of his masterful monograph *Speculation: A Cultural History from Aristotle to AI*. Here in 'Speculative Uncertainty and Modern Technology' he turns to modern financial prediction and computer forecasting. Rogers reflects on the apparent paradox between the growth in computer data and misguided predictions. Reflecting on the development of the stock ticker in 1867 as a mystical technology that foreshadows contemporary approaches to prediction, and the figure of the 'master predictors' such as Nate Silver and Sam Bankman-Fried he argues that more data does not equate to more accurate predictions and instead calls for a necessary recognition of uncertainty as central to prediction. This argument entails a recognition that speculation has become a field of expertise under the guise of prediction and when predictions are

30 Pryor, Richard (1976) Black Hollywood. *Richard Pryor*: *Bicentennial Nigger*. Warner Records.

catalogued, be they those of Jim Cramer or Mark Lawrenson,[31] it is easier to see that predictions improve when they are the result of collective enterprises and a diversity of inputs as this reduces biases.

Paolo Vignola's keynote paper, 'After the Party of the Anthropocene. Extractivism and Technodiversity' develops this point on diversity by pinpointing in the Anthropocene and the digitalisation of society the notion of 'extractivism' as the *trait d'union* of these two trends. Here extractivism is to be understood not only as a set of extractive activities (such as oil, minerals or data), but also as the *forma mentis* of Western culture including speculative enquiries. Accordingly, he brings what can be called speculative enquiries, ranging from decolonial thought, post-structuralism, techno-logical views, materialist thinking, speculative feminism and post-humanism, into a peculiar interlocking that describes this 'noology' as an 'extractivist image of thought'. In so doing, this highlights the concept of techno-diversity (Hui, Stiegler) as a critical diagnostic device against the entropic and homogenising tendency of the Western technological monoculture, and as a vector for the production and flowering of differences in society, thought and technology itself.

The third keynote contribution, 'Techno-Medusa: A Myth of Our Times', by Francesca Ferrando took the form of a hybrid post-human theatre centred at the body of the philosopher. It employed multimedia, electronic music, light, masks, poetry, dancing, scents, critical theory, and audience participation. Through such apparatuses, Ferrando delineates a number of myths related to our era and asks us to name and face them, effectively promoting the awakening of our posthuman condition, existential awareness and resilience. Her contribution in this volume is a speculative enquiry in the shape of a poetic expedition to the posthuman condition.

In 'Nihilism and Finitude in Neuroscience: An Approach through Speculative Phenomenology', Evangelos Koumparoudis offers a relational and embodied understanding of brain function through four cases of finitude. This is done through a reflection on the concept of 'dehors' – the chaotic, unknown aspects of existence and the development of the term *asymvatotita*, the formalisation and placing of restrictions on being. Koumparoudis' speculative phenomenology is a method that proposes theoretical connections to mental pathologies such as aphantasia, autism, and schizophrenia. Where classical phenomenology seeks to uncover the essence of experience, speculative phenomenology seeks to transcend reductionism and embrace the richness of human existence.

Denis Maraž's 'From Enlightenment to Sustainment' re-

31 BBC (2020) Lawro's Predictions: Liverpool's 159-game unbeaten run is finally over. 5 November https://www.bbc.com/sport/football/54819594

thinks the 'now' of our time, our understanding of reality and the decentered subject's role within, through Fry's concept of Sustainment. This concept critiques the tendency to sustain the unsustainable under the guise of sustainability and reveals the duality of the Anthropocene as an expression of modernity and as an expression of contemporaneity. Reflecting on Kant and Foucault's approaches to Enlightenment, Maraž argues that each are products of their time yet they allow us to speculate and frame reality and subjectivity in new ways.

Equally responding to the changing epistemological context of the contemporary world, Claudia Marian's 'The Learning Gardens as an Adaptation of the Heutagogy Orientation' considers the value of heutagogy in the development of student's learning autonomy. Through an analogy with healing gardens, and a 7-point Likert questionnaire, Marian proposes the creation of real spaces intended to facilitate independent learning and speculative enquiry in the university environment. The value of such learning spaces is seen in the realisation that while heutagogy entails self-directed learning, this, as we have seen with the practice of speculation, remains a social, embodied and environment influenced activity.

In contrast, Marius Markuckas in 'Transhumanism as a Post-cultural and Post-religious Phenomenon' focuses on clarifying aspects of the embodied speculation that is Transhumanism. Markuckas argues that due to its anti-essentialist and constructivist speculative tendencies Transhumanism is best conceived as a post-cultural and post-religious phenomenon. The transhumanist paradigm of thinking is itself revealed to contain a central paradox whereby human nature (as conceived by religion) and efforts at cultivation (culture) are standing in the way of human perfection. Instead, human nature is seen as something to be overcome and transcended.

Lola Mata Harroué's contribution, 'Lesbian Imaginaries of Rural Life: A Case for Deviant Ecology and Epistemic Tools for Queering the Environment' explores the intersection of lesbian imaginaries, rural life, and the ecosocial crisis. Inspired by the long tradition of rural motifs in lesbian art and culture, such as Maria Mercè Marçal's collection, *Terra de Mai,* and the 'cottagecore' online trend of 2019, Mata Harroué presents a form of speculative enquiry under the title 'deviant ecology'. This approach focuses on the social, economic, and epistemological implications of queering fabulations and the reworking of rural spaces in the context of the ecosocial crisis. It finds that epistemic tools emerging from the ecological queering central to lesbian rural utopias include redefining kinship, deconstructing rural spaces and the adaptation of technology. The latter is exemplified by Sara Ahmed's account of how a postbox can be a nest.

Francesca Perotto in 'Critical Art Practices. An Account of Two Case Studies through the Lens of Deleuzian Affective Ethics' takes a more philosophical approach to the speculative epistemology of contemporary art practice. Through a comparative analysis of Alfredo Jaar's *Lights in the City* (1999) and Aikaterini Gegisian's *The Handbook of the Spontaneous Other* (2020) Perotto teases out the affective politics and ethics of the artworks. Specifically, this is achieved by focusing on the experimental role of Deleuzo-Guattarian percepts in and the ability of the artworks to challenge norms of representation and create what Gegisian calls 'new image worlds'. Perotto finds that where Jaar's work ends up reifying politics structures and systems, Gegisian's work serves to perpetually transform them by resisting resemblance.

Likewise, Silviya Serafimova's contribution is focused on ethics. In 'Speculative Ethics? On Coupling Care with Relational Justice in "Antiecological Times"' she considers Maria Puig de la Bellacasa's project of a speculative ethics of care. Clarifying the project as potentially relativistic, naturalistic, and ontologically deterministic, Serafimova develops Kathleen Lynch's concept of 'relational justice' to speculate on the applicability of Bellacasa's project in a multispecies context in antiecological times. Specifically, the value of the relational justice in this context is the emphasis on a 'constructive ethical gradualism' grounded in cognitive empathy beyond human agency that resists either–or moral dilemmas. It is this that rescues the project of speculative ethics of care from an anthropocentricism where humans are the only moral agents who can make decisions about other beings.

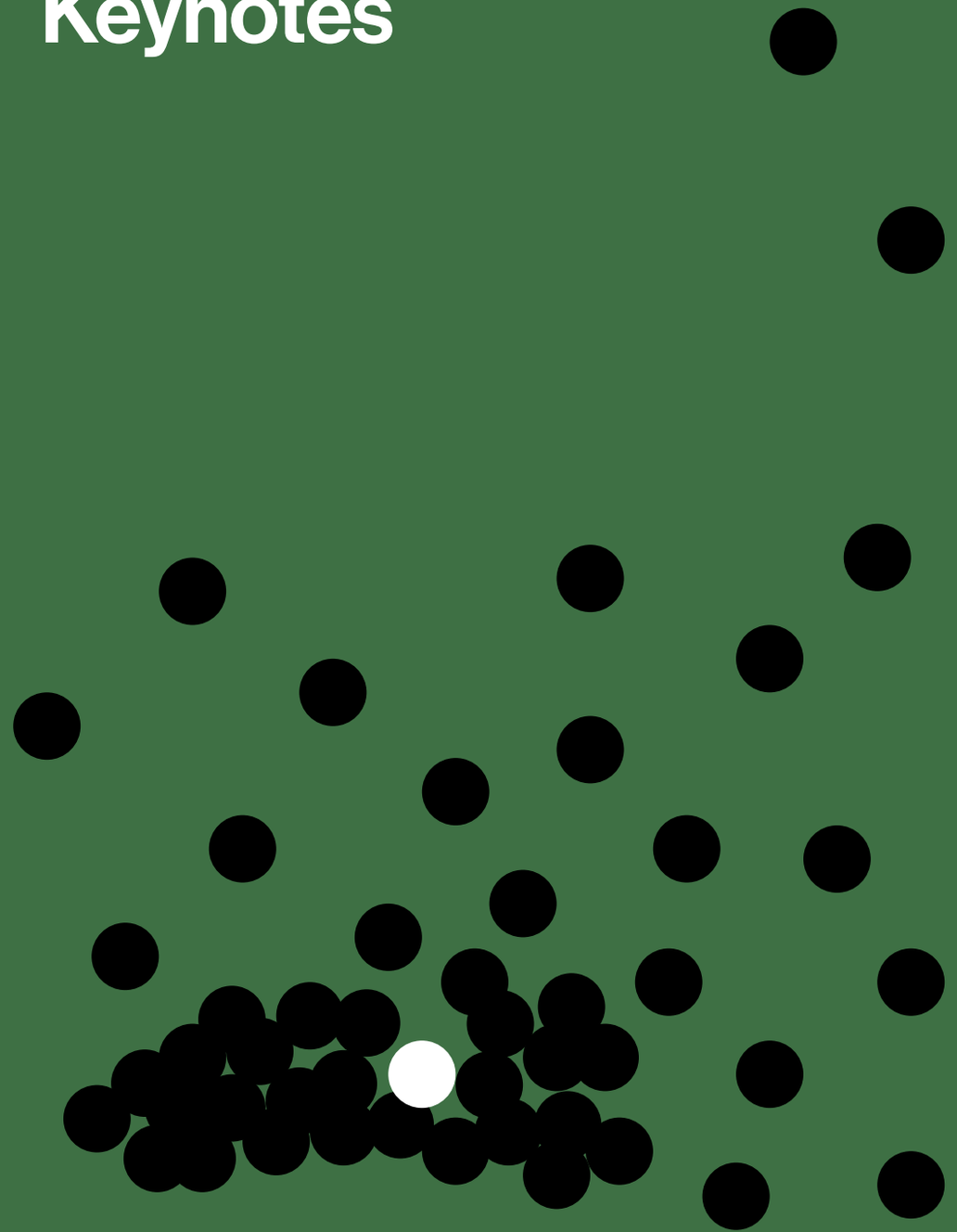
In the final paper, 'How About Green? Imagining Urban Green Infrastructure in Bucharest with the Help of AI Tools', Teodora Ungureanu, Andreea Cătălina Popa, and Ștefan Bunicelu consider urban green infrastructure solutions to the challenges presented by climate change. Specifically, this is done through a consideration of Romanian (specifically through three case studies in Bucharest) urban legislation and an exploration of possible applications of AI representation tools, such as Stable Diffusion, in visualising sustainable urban areas in Bucharest. Through these images, which present a less car-centric urban model, they hope to present and promote a safer, healthier and more sustainable urban model and as such constitute a deliberate contribution to the public discourse that resists the privatisation of green space. Echoing Rogers, they find that such AI imaging operates best as a tool for urban planning and not as a replacement to the role of the expert.

As with previous editions, we welcomed a variety of artistic interventions. Brief descriptions of five of these are included here as our final chapters. Each demonstrates different tactics of speculative enquiry. Indiara Di Benedetto creates speculative artistic and technological artifacts that seek to envision imaginaries

of the future through tangible objects. Marinos Koutsomichalis looks back into photo-sensitive chemistry and 'darkroom' techniques to achieve a kind of photography that speculates on the very ontology of its literal/material constituents. Jye O'Sullivan collects analogue and digital materials and recorded interviews on the theme of care to generate an interactive audio synthesis that resists logocentric approaches to and emphasises the materiality of care. Ester Toribio Roura stages a multimedia theatre wherein speculation becomes the means to enquire alternative stories of the Anthropocene and to speculate about what possible futures may mean to us. Finally, Thanos Vozikis, inspired by Jorge Luis Borges' 'The Garden of Forking Paths', reimagines conventional literary narrative structures through a physical installation that materialises the abstractions of infinite possibilities.

No event of this scale is the work of one or two individuals. We would like to thank, in addition to all the contributors and in no particular order, the following for their help and support, without which the conference and proceedings would not have been possible: Noel Fitzpatrick, Conor McGarrigle, Ioana Moldovan, Mick O'Hara, Brenda Duggan, Santiago Perez Rodriguez, Lily Bethencourt, Anastasia Melandinou, Dimitri Savva, Teresa Georgalis, Yiannis Christidis, Juan José Jorquera Lucerga, Kristina Wischenkamper, Paul Hayes.

Part 1
Keynotes



Chapter 1

Speculative Uncertainty and Modern Technology

Gayle Rogers

Andrew W. Mellon professor and chair of
English University of Pittsburgh
grogers@pitt.edu

Abstract

This paper explores the technologies of modern prediction as they grew from ancient practices to the contemporary reliance on advanced computational models. It addresses the paradoxical impact of modern technology, which has heightened predictability while concurrently leading to misguided forecasts. It underscores the need to scrutinize two key dimensions: the development of prediction as a field of expertise and its intertwining with voluminous amounts of mechanically and computationally generated data. Tracing the roots of prediction, the paper draws parallels between ancient divination methods and the transformative role played by the stock ticker in the 1860s. This historical narrative serves as a precursor to the contemporary fascination with computational prediction, highlighting the persistent interplay between traditional and modern forms of prognostication. The paper examines the present-day example of Nate Silver's acclaimed success in predicting the 2012 presidential election. It critically assesses the inflated claims surrounding Silver's methods, emphasizing the limitations of overreliance on computational models. It argues for a nuanced understanding that acknowledges the inevitability of uncertainty in predictive endeavors.

At a basic level, this paper challenges the prevalent culture of data worship, advocating for a reevaluation of predictive expertise. It calls for a renewed emphasis on uncertainty and a departure from the obsession with data quantity in favor of considering the quality and relevance of prompts. It proposes a threefold approach: understanding specific prediction goals and confidence levels, demystifying prediction and expertise, and prioritizing quality in data utilization. Furthermore, it scrutinizes the role of generative AI in prediction and speculation. It argues that human inputs are integral for shaping the foundations of AI, and the interplay between human intuition and computational processing remains crucial for predictive success. It concludes with a call for a paradigm shift that embraces uncertainty as an intrinsic aspect of prediction. It advocates for a balanced approach that acknowledges the craft and art of prediction alongside computational advancements. By recognizing the value of uncertainty and reevaluating the role of expertise and data, this paper proposes a path forward that integrates humanistic, contemplative, collaborative, and embodied modes of thought with the advancements of computational technology.

Keywords: speculation, uncertainty, technology

There's an old proverb that is traditionally attributed to the Danes: 'It is difficult to make predictions, especially about the future.' Finding bad predictions in the records of humanity is truly a fish in a barrel project. We often tell one another stories of our own shameful bad prophecies of how we thought this or that would be the next big thing, yet ended up being a fad. A couple of enterprising websites have started archiving 'freezing cold takes,' as Fred Segal calls them from the sports world, or the CNBC stock market guru Jim Cramer's worst whiffs.[1] And this is a good thing: predictors are rarely held to account.

But of course, there's nothing new about prediction, or about bad predictions. We've been trying to predict the future ever since we started tracking the patterns of the sun and the moon. It's tempting to say that prediction is key to what separates us from lower animals, but of course animals do a great deal of predicting, too: just think of Pavlov's dogs. So more precisely, it's a certain form of advanced predicting that humans do – steps upon steps of causal chains built upon historical stores of knowledge, like a giant Rube Goldberg machine perhaps – that makes us good enough and ideally useful and purposive predictors. And so it is that we use prediction almost every minute of every day, often without even thinking about it. We drive along and see a stoplight change to yellow; we predict that it will next turn to red, that the cars next to us will slow down as well. That the cars moving perpendicular to us will then go when we stop. That they'll stop when it turns red for them and allow us to proceed. And so on. We rarely pause to consider how advanced all of this is – relying on modern technology, electricity, gas, roads, driving tests, customs, habits, courtesy (we hope), and so much more. Forget things like predictions that the sun will rise and the sun god will not smite us

1 See https://twitter.com/OldTakesExposed?ref src=twsrc%5Egoogle%7Ctwcamp%5Eserp%7Ctwgr%5Eauthor

for not paying him a seasonal sacrifice of five children. How did we get here, while our dogs still run out in traffic?

And yet, we're still terrible at all sorts of prediction, everywhere. This dynamic is worth opening up: modern technology has made life much more predictable, but it has also made us, in many ways, more misguided, and often worse, predictors, in particular as we have been enchanted by the purported power of mass data. A next set of interests and concerns follows from that – and they are even more difficult to understand, more deeply intertwined, and indelibly modern phenomena. They are: (1) We need to probe how prediction became a field of expertise, and (2) We should question how that expertise became driven by, and indeed overtaken by, endless mechanically and then computationally generated data. We shouldn't take any of these developments for granted, even when many other fields have evolved in this direction and trajectory (and overall shape), because many still understand prediction as fundamentally an art and/or a mediated practice, much as it was for millennia. And technologically driven prediction has, by and large, interacted with, rejuvenated, and otherwise interestingly engaged over time with some preexisting forms of prognostications as old as dice and coin flips – rather than simply displacing old forms entirely and permanently. This in part accounts for why the mode of 'cognitive provisionality' that we associate with speculation, less bound to facts on earth and more open to contemplative creativity, ends up being at once so attractive and yet degraded in post-Scientific Revolution discourse.[2]

We certainly think we're better predictors than our distant ancestors, those silly fools who cut open sheep and examined their entrails in order to determine whether this fall's harvest would be robust, or whether an enemy would be vanquished in war? We are, yes – well, mostly. We're also not very good at it, in part because we do so much more prediction that we lower our collective Brier scores, as it were. We need to step back and explore, in a moment when hardly a modern field or discipline that relies on prediction does so without computation, how we have come to take so much data for predictive certainty, and what then happens to a life-orienting concept that historically has been at the core of speculation: Uncertainty. There are chapters in the history of prediction and uncertainty as intertwined concepts that can tell us a great deal about how both speculation and prediction function in the present moment. If we think seriously about speculation and prediction, which are two different but deeply interconnected habits of thought, outside the typical focus on accuracy and future verifiability – which just puts us in an endless logical loop – we can

2 Catherine Gallagher, 'The Rise of Fictionality,' in *The Novel*, ed. Franco Moretti, 2 vols (Princeton, NJ: Princeton University Press, 2006), 1:347.

start to see something new.

Let me give two illustrative examples of predictors who were (and are) held up as guru-like oracles that might help us understand how the master predictor has gone from a shaman to a computer geek. This can then help us dig into what this means for forecasting at the intersection of the modern humanities, arts, and sciences. As a caveat, this isn't an attempt to establish a long causal chain between these two particular phenomena (though there are some strong correlations, as I've explained in my other work), but rather, simply some hand-picked moments that speak to human impulses to do things with machine-generated, then computational, data as it has been used for prediction (not to mention gambling on the future, in both cases, in variegated ways).

I won't rehearse here the thousands of years of history of how we've made predictions – from augury and tarot cards to Nostradamus and the *Farmer's Almanac*. Instead, let's first fast forward to the moment in the 1860s when machines began to play an exceptionally significant role in prediction. It's tough to overstate the transformational role played by the invention of the stock ticker in 1867.

Operating on the back of the telegraph system, ticker machines could transmit stock prices and quotes almost instantly over vast distances, and thus revolutionized the way investors and speculators approached markets, including what it helped enable to boom in this moment – especially in Chicago – the futures market. The oracle-like tabletop machine encased in glass spit out predictive information with seemingly boundless energy. For the first time, data generated by a machine in real time took on a hierophantic quality for investors: it was a modern version of the Fates, telling the predetermined prophecies of humanity through an unending line of information on tape. (And to telegraph something, in this moment, took on the connotation of 'to signal what is coming.') The ticker spoke a language that combined the abbreviated forms of telegraphy with the recondite coded language of stock quotes to emit 'magic words,' as one writer called them, that foretold the future of entire economies.[3]

The spread of these magical machines was astounding. The Gold and Stock Telegraph Company had 25 tickers in service in 1867; by 1905, that number was 25,000.[4] Especially with the addition of telephones in 1876, anonymous and distant speculation was now possible, as was crossing continents, thanks to new transatlantic cables. A far-reaching and well-conditioned response, then, was to translate the 'mystical' and 'magical' elements of the

3 Murat Halstead, 'The Varieties of Journalism,' *The Cosmopolitan*, December 1892, 205.

4 See David Hochfelder, *Telegraph in America, 1832–1920* (Baltimore, MD: Johns Hopkins University Press, 2013), 111, Table 4.2. Parts of the following refer to Gayle Rogers, *Speculation: A Cultural History from Aristotle to AI* (Columbia University Press, 2021), 117–123.

ticker into a language requiring 'expertise' and 'study' to master and understand – a kind of expertise that could only be gained by educated white men. To knowingly interpret the ticker, it was claimed, required one to master pricing data and futures markets as a kind of learned fortune-tellers. A grassroots publishing industry quickly arose to produce guides on how to read its product – ticker tape.

Financial papers were full of highly stylized and metaphorical accounts of the ticker's revelations and of the powers of male 'ticker speculators' and 'tape speculators,' for whom reading was something of an addiction to mechanized data consumption. The journalist Julius Chambers recorded memorably in his novel *On a Margin* (1884) that 'the discovery of America is usually regarded as a rather important historical and commercial event; but to the new estate of man that grows rich without toil the invention of the 'stock ticker' outshines the achievement of Columbus.'[5] Families gathered round the little machine and burned up their savings, in brokerage houses and in bucket shops, believing that whoever could read its tape was a true prophet.

There was something here about this ability to read and interpret mechanically produced data that made tape readers a new kind of predictor in a world when investment, in the 1860s, was not yet dominated by professionals and familiar white-collar firms, nor was there a surfeit of publicly available data to guide common would-be investors. In fact, at the time, financial advice columns still regularly mixed horoscopes with earnings reports, or fortune-telling techniques and meteorological charts with alleged insider tips. But what's important to note here is that ticker tape readers became known as experts of a certain type, able to master reams of data, and to do so quickly, in a new coded language – something the shamans and dice throwers of the past claimed to do, but never as studied experts of a science and quasi-discipline. It goes without saying: these predictors were no geniuses, no masterminds, no better or worse than anyone else who did their homework.

We know what happened over the course of the following decades, as a newfound and growing faith in computational technology increasingly limited the human elements of decision-making and led to an overconfidence in machine-driven prediction. The humans at the other end of the machines who then emitted these prophecies to the public were often overconfident in their claims, but were backed by the data. Uncertainty was supposedly diminished and was relegated to a domain of the human mind; to put it in overly stark terms, only humans could be uncertain, not machines. It doesn't take much to note that things didn't quite work out as the ticker's champions hoped, and this mindset played a key role in creating the bubble that burst in 1929 and led to a global

5 Julius Chambers, *On a Margin* (New York: Fords, Howard, and Hulbert, 1884), 190, 191.

depression. This is not to say that humans prior to the ticker were better predictors or found ways to better minimize uncertainty – think of the Tulip Bubble, the South Sea bubble, any number of panics. But rather, post-Industrial Revolution investing found its version of the automobile revolution.

The second example is a contemporary one. It's also driven by methods purporting to be at the cutting edge of data science, computer forecasting and modeling, and purportedly Big Data, or at a minimum, certainly amounts of data beyond the processing capacities of typical computers. Few people have attracted more attention and gained more celebrity status as a predictor and a scholar-historian of prediction in the past 15 years than Nate Silver, founder and former director of the website and media company FiveThirtyEight. He famously called all 50 states correctly in the 2012 presidential election, and he attributed his success to methods of data science and computer-aided modeling – which he claimed would displace the old-fashioned insider opinions and biased polling of the Beltway pundit class. And 50 out of 50 is amazing, right? Silver followed this up with a book, *The Signal and the Noise* (2012), that became a bestselling exegesis of how he operates, and how his methods could be applied to many different circumstances to make us better, data-driven predictors.

But we should zoom out for a moment, since this doesn't even take expertise in political science or polling to unpack. If someone had simply done no homework at all, and said, 'Obama will win the same states in 2012 that he won in 2008,' they would have correctly picked 48 of 50. Not bad. In essence, Silver correctly called two flipped states – which is impressive. But it's also what the non-weighted, simply aggregated polling averages indicated was extremely likely. We don't need to go into all the details here, but as with the ticker, there's a lot of sound and fury involved, but the results don't actually bear them out. (As a side note, Silver's Brier score for the 2012 presidential was actually within .01 of four other leading predictors' scores; they simply didn't get the publicity, and his senate calls in 2012 were worse than those of plenty of his competitors.)

When offered the opportunity to explain how computational social science made him a better predictor, and when really pressed on his methods, Silver has no shortage of language about 'fat tails,' 'mean-reverted biases,' and 'smoothed rolling averages,' but he really has had no answers. There's an empty worship of data and terminology in his work, and it got him into major fights during the Covid pandemic. Eventually he was fired from FiveThirtyEight, his pet project. Perhaps what we consumers were adoring here, as with the 'tape readers' of old, is a mystified relationship between humans and mass-produced data – purportedly mastered by an individual. Silver suffers a severe problem he has attempted to

diagnose in others – and this is the great irony. He consistently pushes all of us to – as he would often put it – 'embrace uncertainty.'

And we know – back to Socrates – the more we know, the more we understand how much we don't know. Because if the computational methods and the promise of greater mathematical certainty through scaling and modeling really bore out, shouldn't we be better at this now, when we have so much more information? Wouldn't the Covid modeling, too, despite the wild variability of human behavior, have been far more accurate, when in reality the Institute for Health Metrics and Evaluation and others missed awfully? Wouldn't professional investment advisors – with endless data and supercomputers and algorithms at their fingertips – outperform the returns of an average S&P 500 index fund? (In fact, only 20% did in 2022, and on average it's extremely rare for more than 40% to do so.) Exchange rates, too, regularly fall outside the entire projected ranges of major bank forecasts. Analytics dominates the front office of nearly every sports team in every league, yet each year – with the same data – plenty fail miserably. And we're all familiar with what has happened when we let machines and algorithms do predictive work for us in the criminal justice system. The list goes on.

Therefore, why do we still put so much trust and faith in machine technology – which essentially means computers now – to guide our predictions, to help us speculate on the future with less uncertainty? Managers love to tout their ability to make 'data-driven' decisions (as if we didn't use data in the past). And, moving a step outward, why is it now a prerequisite for predictive expertise in many fields that one master the relevant computational data? It's not in the arts – no one says, 'What is new in sculpture, and where do you think sculpture is headed based on your knowledge of algorithms?'; whereas the ability to answer that same question for many STEM fields is a sine qua non.

Here is where I think we can get off this track: We need to recover and reincorporate more of the craft and even art of prediction, and to understand the value of uncertainty. Not prediction's old mystical or hierophantic qualities, but a recognition that prediction often requires humanistic, contemplative, embodied, and other modes of thought. The foremost scholar of prediction today, Philip Tetlock, has provided a good taxonomy of where we often go wrong, the types of biases – often drawn from the world of statistics and grounded in the ways we misread evidence and overreact to certain situations. He offers some advice on how to become a better predictor, drawn from the large-scale experiment, the Good Judgment Project. But how is the average reader supposed to enact platitudes like 'Strike the right balance between inside and outside views.' If we knew what that right balance was

– we'd do things correctly. And nothing is as simple as identifying and purging biases. And what if the very premise is wrong? What if speculative prediction is not meant to pin down future verifiable facts? What if uncertainty is the predominant mode of thinking within this practice?

We know a few things, after all: We know that deeply read experts are not great predictors in their own domains. We also know that completely ignorant folks are terrible. We also know that prediction improves when people are grouped together with others from diverse backgrounds, disciplines, age groups, risk tolerances, and more. But we can't re-create that simulation in every life circumstance: you can't fashion your own ideal advisory group every time you need advice on your retirement plan, on choosing a college, on a romantic relationship, even. Instead, we need to think through some possible guideposts, and to conceive of what our best relationship to these modern formations is so that we can find a balance in a moment when we've tipped too far in one direction.

First, we need to ask a simple question: What does this prediction aim to do, and why? What are our goals, on what horizon, and with what level of confidence do we need to proceed? Is this a prediction about my health based on test results, or is this a speculative portrait of American life in 2045? Second, following from that, we need to demystify prediction itself and demystify expertise; use expertise instead to learn, communicate, and contextualize uncertainty. We need uncertainty in the humanities and the natural and social sciences alike. Does expertise help in this situation? Yes and no. It can surely assist in providing the knowledge base, research of past precedents, and capacities to project plausible futures that we typically rely upon – as when seeking investment advice, for instance. Third, we need to step back from our long love affair of data-worship and quantity, and focus on quality prompts in the right size and scope. (Research like an expert, predict like a generalist, as I sometimes tell myself.) This does not mean that we should smash all the machines and start over from scratch. But we do need to understand how and where data fit into what we hope our predictions can accomplish.

Prediction is a learned discipline, a domain like composing music, but one that seeks potential answers, as the empirical sciences do. It's a discipline that has a serious role for uncertainty – one that computation has been unable either to quantify or to diminish as much as many have long wished – and getting a better handle on how we forecast requires us to conceptualize the future as less controllable through big data, but perhaps more possible to be shaped by the human-to-human decisions we make when brought back to our more familiar, quotidian scale. Putting uncertainty at the center of that can help us see that prediction requires a human manipulation of data, no matter how it was

generated.

That's what can help us see the continuum between speculation and prediction more clearly, and furthermore to see why speculation can have such value outside of questions of factual accuracy. Speculation too is learned, and it can be done well or poorly. It doesn't take uncertainty to mean what economists do, in a narrower sense, when it's opposed to risk (which is calculable, with uncertainty being incalculable or unquantifiable). Rather, it seems that randomness, error, luck, and more are always influencing the shape of our predictions and speculations alike. There are a number of cultural historians who have written on adjacent topics here: Jackson Lears, Ann Fabian, Jamie Pietruska, Scott Sandage. Then there's the world of decision science/decision theory, much more on its humanistic end, that tries to understand how uncertainty operates in probabilistic and utilitarian terms: see Daniel Kahneman and Amos Tversky's earlier work, Baruch Fischhoff, John Kadvany, George Loewenstein, and others.

But for direction here, it's worth looking back to the late-nineteenth-century political economist, William Stanley Jevons, who theorized how the 'power of anticipation must have a large influence in Economics.' Jevons held that 'some function of the future actual feeling and of the intervening time … must increase as we approach the moment of realisation,' and therefore 'we are compelled to take account of the uncertainty of all future events' in generating any theory of economics.[6] In other words, the immeasurable variable of the unknowability of the future was already a force weighing on and conditioning the present. It is baked in, priced in. I wouldn't save this dollar if I knew I'd be making a million dollars every month starting next month, but because I don't think that will happen, I save and give it value. The same is true for speculative aspirations, contemplations on future states of affairs.

But whose expectations? Whose margins, whose utility, and how much, or what quantity of utility? All of these are socially formed and formulated. And we don't want to inhabit a world where every futuristic novel or film is held up for analysis based on whether its predictions came true five or fifty years later, nor whether the data indicate that they are plausible. We need more cognitive possibilities, not fewer. This is where the social element of speculation is crucial. Back in the heyday of bucket shops and extravagant gambling on grain futures in Chicago, speculation was framed usefully in a landmark 1905 Supreme Court decision written by Oliver Wendell Holmes that largely legalized many forms of what had danced on the border of speculation and gambling for decades: 'people will endeavor to forecast the future, and to make

6 William Stanley Jevons, *The Theory of Political Economy*, 3rd edn (London: Macmillan, 1888), 34, 35.

agreements according to their prophecy. Speculation of this kind by competent men is the self-adjustment of society to the probable.'[7] (Stuart Banner's books give a fuller account of all of this.) In short, speculation in this sense is the wild, improbable, radical form of gambling that we need in order to … stabilize prices and make it possible to have regularized probabilities and knowable futures. Speculation accounts for uncertainty in ways that prediction can only stab at, right or wrong, and it only does so when it's a collective enterprise.

But of course, this definition of speculation, while useful for framing these operations, is tautological. There's a way that we can think about speculation and uncertainty through classic, largely economically motivated behaviors that actually has ramifications across many spectra of culture. Every gamble, like every price, needs someone on the other side of it – and eventually, there must be a critical mass to stabilize around it, to set expectations that hold it in the present and give it a potential future. Otherwise every plausible buyer/speculator will endlessly wait until the price comes down. This socialized modulation of uncertainty, however, ultimately enables speculation. And it is only one degree removed from the truism, nowhere more visible that in modern computation, that to measure anything is to transform the underlying data itself.

Nowhere is this thinking more visibly needed than in the hype around AI, and especially generative AI, right now. Financial firms have already used AI for a long time to predict markets, place bets, and more. It can certainly be accurate – otherwise, it would not be useful. But generative AI is another question. Its foundation for generating text or images or music is – us. The collective work of our writing is published on the internet through Common Crawl, for example, which contributes substantially to its corpus. But interestingly, most of the generative Large Language Models like ChatGPT and Gemini demur from making predictions. Ask them to predict the future, or to speculate on a topic, and they will give all sorts of caveats and then produce only the most generic predictions, such as 'technology will advance and society will change.' However, ask them to speculate rather than predict, and they have no reservations laying out – as ChatGPT did for me – a vision of 2050 with autonomous electric vehicles powered by sustainable resources, full of claims such as:

As a result of these transformative advancements in transportation, the world has

7 Board of Trade v. Christie Grain & Stock Co., 198 U.S. 236, 247 (1905).

become more interconnected, accessible, and sustainable, fostering a global community that transcends geographical boundaries and encourages collaboration and cultural exchange on an unprecedented scale.

But what if we move away from the demand of prediction that it come to life or be verified by some scientifically rigorous experiment? What if instead we think about prediction as it's already operating in these LLMs, for starters? Generative AI works by predicting the statistically most likely next word, and it logarithmically adjusts as it proceeds, further and further adapting and refining the contexts for its choices so that, by the end of a paragraph, it has very high confidence in what should follow. The goal of this language model is to decrease uncertainty and augment certitude. And again, it seems to be a self-sustaining product of masses upon masses of data.

But even outside the world of behavior and experimentation, the human inputs are forgotten once algorithms are seen to perform flawlessly, until uncertainty and indecisiveness come back calamitously in a machine-learning model's mistakes. Think of the recent example of an autonomous vehicle performing tens of thousands of hours of successful road tests, then being easily duped into thinking a stop sign was a 45 MPH speed limit sign when someone placed four small strips of electrical tape on it at certain points. No human would make that mistake, yet the bug – now a feature – clearly came from a human source, somewhere, some place, deep in the process. What this means for the interplay between humans and computational machines, and how human-computer/humanistic-computational interaction will transform the very notion of uncertainty as it commingles craft and data, is a question that requires the kind of historical synthesis and some forward-looking (though not predictive!) thought that scholars must equally train our eyes upon. Computational machines cannot speculate or predict without the elements of uncertainty that we humans bring.

Recently, we've seen Sam Bankman-Fried sentenced for his massive cryptocurrency fraud. It was a speculative swindle at

multiple levels. But SBF, as he is known, also had ideas about art and literature and imagination, and the interrelationship among them. He wrote:

I could go on and on about the failings of Shakespeare, but really I shouldn't need to: the Bayesian priors are pretty damning. About half the people born since 1600 have been born in the past 100 years, but it gets much worse than that. When Shakespeare wrote almost all Europeans were busy farming, and very few people attended university; few people were even literate – probably as low as ten million people. By contrast there are now upwards of a billion literate people in the Western sphere. What are the odds that the greatest writer would have been born in 1564? The Bayesian priors aren't favorable.[8]

8 Bankman-Fried, 'The Fetishization of the Old,' Aug. 2, 2012: https://web.archive.org/web/20230406060908/https:/measuringshadowsblog.blogspot.com/2012/08/the-fetishization-of-old.html

This is obviously complete idiocy. Trying to calculate the odds and the 'priors' for the origins and development of a genius at best borders some form of eugenics planning. But mostly, this signals a failure of SBF's imagination, like those of so many others in speculative finance. The ability of speculative thinking, rather than predictive probabilities, to create new futures against seemingly insurmountable odds is, in short, the story of humanity.

Confidence in prediction and speculation comes in humility combined with the audacity to make bold claims without imagining that mountains of data can tell us what we want to know. Data can narrow the range of probable events for us, yes, but the human craft of speculative thinking – of cognitive provisionality – thrives when it is not fully moored to the modes and processes of computation that we've now come to trust with so much of our future-making. If we restore uncertainty to its vital role in futurity rather than simply judging predictions ex-post-facto by way of results, we restore the curiosity and innovation that can best allow humans and machines to think wildly, which is the greatest path we have into the future that we'll all inhabit.

Chapter 2

After the Party of the Anthropocene Extractivism and Technodiversity

Paolo Vignola

Invited Professor of Philosophy of Technology,
Pontificia Università Antonianum (Rome)
albengadipaolo@gmail.com

Abstract

This paper aims to show a critical philosophical perspective, composed of heterogeneous authors, with respect to the anthropocentric and dualistic limits that are manifesting in our era, especially in the areas of what is called the Anthropocene and the digitalisation of society. I will propose the notion of 'extractivism' as the *trait d'union* of these two trends, where extractivism is to be understood not only as a set of extractive activities (from oil, gas and minerals to data mining), but also as the 'image of thought' or the forma mentis of Western culture. In order to do so, perspectives as diverse as decolonial thought, post-structuralism, techno-logical views (Stiegler), materialist thinking (Moore), speculative feminism (Haraway) and post-humanism (Ferrando) are brought into dialogue. If the propositional core of the article lies firstly in describing this 'noology' (Deleuze and Guattari) as an 'extractivist image of thought', the consequence will be to highlight the concept of techno-diversity (Hui, Stiegler) as a critical diagnostic device against the entropic and homogenising tendency of the Western technological monoculture, and as a vector for the production and flowering of differences in society, thought and technology itself.

Keywords: extractivisms, anthropocene, noology, data science, technodiversity

1. Hanging Out at the Party

Before beginning this article, I would like to quote a set of heterogenous thinkers converging towards a radical critique of the 'Anthropocene' as an anthropocentric concept. Timothy Morton (2014: 1) has argued that 'the term has arisen at a most inconvenient moment. Anthropocene might sound to posthumanists like an anthropocentric symptom of a sclerotic era'. In the same way, according to Emanuele Coccia (2017: 76) 'The notion of the Anthropocene transforms what defines the very existence of the world into a single, historical and negative action: it makes nature a cultural exception and man an unnatural cause'. From a materialistic and Marxist point of view, Jason W. Moore's concept of Capitalocene expresses an analogue idea to the extent that, according to Moore, climate change is not the result of an abstract human action, but the direct consequence of centuries of capitalistic domination: 'The endless accumulation of Capital and the endless appropriation of the Earth constitute, on a global scale, one and the same process' (Moore 2013: 18).

In this vein, the Anthropocene as based on the dichotomous separation between man and the environment would represent a Cartesian vice, and this allows us to think industrialisation as a negative action above nature, which in its turn is understood as a resource external to capitalism. Such an epistemic separation of humans and nonhumans is for Bruno Latour the 'Great Divide' of Western modernity: on one side, the transcendence of an indifferent extra-human nature; on the other side, cultural sphere, historicity, and social interactions (Latour 1993: 10–12). Latour shows this divide as a kind of self-consciousness of Western Modernity and its forma mentis: through an operation of epistemic purification, this rational cosmology divorces from all collectives, which are reconfigured as disturbing arrangements of humans and nonhumans. It is in this sense, thus, that Clive Hamilton (2017: 76–87) has argued for seeing the Anthropocene as the most recent unifying grand narrative of humanity. And it is also for struggling against it that Donna Haraway coined the term Chthulucene: 'Unlike the dominant dramas of Anthropocene and Capitalocene discourse, human beings are not the only important actors in the Chthulucene, with all other beings able simply to react. [...] human beings are with and of the earth, and the biotic and abiotic powers of this earth are the main story'. (Haraway 2016: 55). Haraway's Chthulucene would thus be a way to avoid the anthropocentrism, by avoiding the transcendent unity – Homo sapiens – that claims to represent itself as the only subject on the planet.

The list could go on, but it seems already satisfactory to understand the ironical sense of Francesca Ferrando's image of 'The party of the Anthropocene', through which she developed a radical posthumanist critique of the anthropocentric limits of the very concept of the Anthropocene. According to Ferrando (2016: 165), 'there is no Anthropocene without anthropocentrism. The Anthropocene [...] is one of the consequences of an anthropocentric *Weltanschauung*, based on an autonomous view of the human as a self-defying agent'. But it is now worth quoting some grotesque details of that party that characterises the powerful fiction with which Ferrando's essay is woven.

> Welcome to the glamorous Party of the Anthropocene,organized by humans for humans.
>
> We are going to celebrate the supremacy of the human,achieved after centuries of poverty, disease and labour. We made it.
>
> We are going to drink all the bottles of alcoholicand non-alcoholic beverages ever produced; we are going to eat all the lobsters, cows and chickens left on Earth.
>
> Alive non-human animals are not allowed. Robots are allowed, if accompanied by humans – they need tickets too.
>
> (Ferrando 2016: 161)

Such an image of an 'all too human' party sounds like a state of mind to which humanity gets access by forgetting the intimate interrelations with all the other living and non-living beings

in which it is melted. It is thus the Anthropocene as a state of mind, that reflects the *forma mentis* of Western Reason grounded in the Cartesian 'Mathesis Universalis', which is in its turn materialised in a collection of ideas and perspectives on reality, what allows us to see time as linear, space as flat and homogeneous, and 'nature' as something external to human relations and ready to be exploited. Now, although everything seems ready for this grotesque banquet, there are some technical issues that it is worth showing, because if we look at them with attention they could represent a kind of theoretical line of flight from the party, and then, perhaps also a way to escape from the very Anthropocene, as Bernard Stiegler had already suggested (Stiegler 2015).

2. Techn(olog)ical Issues

Behind the convergence on the anthropocentric limit of the Anthropocene expressed by all these authors, and behind their critique of the Nature/Culture opposition, it seems possible to renew the question about technology, as both Bernard Stiegler and Yuk Hui expressed following and deconstructing Heidegger's perspective. Just to remember, in his talk 'The Question Concerning Technology', Heidegger (1977) argued that the essence of modern technology is a metaphysical imposition [*Gestell*] – a transformation of the relationships between humanity and the world through which everything has been reduced to a 'stock', or 'resource' [*Bestand*], that is, something that can be measured, calculated, extracted and exploited.

Now, although he passed away two years before the shocking and disruptive success of Chat GPT and the Large Language Models machines, Stiegler is perhaps the philosopher who more than anybody could be of help to human sciences scholars for a deep understanding of the articulation of the Anthropocene and AI, which, according to Matteo Pasquinelli and Vlad Joler (2021), are the two meta-paradigms of our epoch. Indeed, in his attempt to show 'platform capitalism' as the last stage of this *Gestell*, Stiegler (2018a: 197) argued that 'Humanity has become, like coal, a non-renewable resource (*Bestand*) at the service of the massive extraction of surplus value through the calculation of averages: this is how nihilism is effectively accomplished'. In this way, Stiegler allows us to analyse both the biological and the geological aspects of the Anthropocene, as well as the new form of human exploitation driven by platform capitalism, as the two faces of the same entropic and anthropic logic, that I will describe later as an extractivist logic or an 'extractivist image of thought'.

According to Stiegler, the Anthropocene can essentially be interpreted as the phenomenon of the entropic destruction of diversities, and therefore it is entangled with digital capitalism and with the political-cultural problems that algorithms are raising. Industrial and digital standardisation 'seems to lead the contemporary Anthropocene to the possibility of a destruction of life as a flourishing and proliferation of differences – such as biodiversity, sociodiversity ("cultural diversity") and psychodiversity' (Stiegler 2016: 31). Such a techno-ecological and economic-political diagnosis is shared by Yuk Hui: according to him, the domination of Western reason within globalisation is entropic in the sense that it homogenises different cosmological relations into one that is compatible with modern technology (Hui 2020). The philosopher of *Cosmotechnics* highlights the role of the colonisation, modernisation, globalisation and technification of every aspect of human life as the main bases of the EuroAmerican universalism, which in turn has given rise to 'a mono-technological culture in which modern technology becomes the principle productive force and determines the relation between human and non-human beings, human and cosmos, and nature and culture' (Hui 2020: 12). By this, Hui wants to report the entropic hegemony of our own Western cosmotechnics, that articulates the moral, the epistemological and the techno-material sphere, giving rise to a monotechnological culture that is erasing the possibility of alternative forms of technology.

Now, considering that data science has become the hegemonic science of such a monotechnological culture, it is very interesting to understand how Dan McQuillan can conceive it as an echo of the neo-platonism that informed early modern science, and in particular Copernicus' and Galileo's works. The metaphysics that lies behind early modern science believes in a hidden layer of reality, which is ontologically superior, expressed mathematically and apprehended by opposing direct experience. But this same two-worlds' metaphysics operates also in data science:

as a method for revealing a hidden mathematical order in the world, data science strongly echoes this neoplatonic project. For the data scientist, computation plays

the role of the intermediary between the imperfect world of data and the pure function that relates the features to the target. While the scientific project required a mathematisation of the world, data science requires the datafication of the world.

(McQuillan 2018: 261)

Data science enables us to perceive ourselves as separate from a mathematised, manipulable and extractable context: 'We perceive ourselves to be standing outside of a reality that we observe, manipulate and extract' (McQuillan 2018: 261). And indeed, data are the new raw material that can be extracted, refined, processed, and transformed into other goods with added value. Now, it is interesting to recognise in data extractivism (datamining) the same dualistic logic that drives all other forms of extractivism, from the extractive activities concerning subsoil resources to aesthetic, epistemological and cultural extractivism, from the extractivism of emotions in social networks to that of dopamine in online activities (dopamining). Furthermore, it is the very operation of extraction that is at the core of both the critical analyses of the anthropocentric limits of the Anthropocene and the contemporary technologies presented so far.

It is in this vein that in the following section I will suggest thinking about the philosophical unifying term of all the extractivist phenomena that structure the western forma mentis and a whole series of narratives linked to it as a kind of extractivist reason, or better, an extractivist image of thought. To do this, I will propose a re-reading of Deleuze and Guattari's concept of noology as the 'Image of Thought' that stands behind the autorepresentation of a State or a society – in its turn based on the Deleuzian 'Dogmatic Image of Thought' (Deleuze 2014) – and I will indicate it as a heuristic model useful in understanding the hypertrophic extractivism at work in every aspect of the Anthropocene, and in particular with regard to biodiversity, sociodiversity and noodiversity.

3. Contemporary Noology as an Extractivist Image of Thought

In our epoch, the whole set of extractivist activities can be conceived as 'a form that reaches the most remote corners of the biosphere and the deepest layers of human cognitive and affective being' (Joler 2020). The logic of traditional extractivisms, that is, those regarding subsoil resources, is based on the Western-centric concept of 'nature', that remains a colonial concept to the extent that the word 'nature' is inscribed in the civilising project of modernity. This concept of nature implies the division between a subject (human) and an object (nature), where the subject (human) is the alive agent, while everything else is 'nature', or an object, to the extent that it is considered as inert. It is to this same dualistic logic, but all internal to the subject, that the extractivisms concerning all that is vital in human life can be traced back, and this precisely because of their dependence on data science. For instance, if we look to the human body, any kind of data – whether biological, biometric, sociometric or psychometric – is captured and stored in databases for AI training, user profiling, nano-targeting and other forms of data exploitation. It is as if there is an *extractivist reason* that penetrates the depths of human nature: everything can now be extracted, by the current political economy and for its aims. This is what allows us to say that data extractivism, for which everything can become a data source, can be envisioned as a new kind of colonisation investing humanity as a whole: 'Thousands of corporations and government actors are vying to plant their flags in the uncharted territories of our behavioral, emotional and cognitive landscapes, invading deeper and deeper into our bodies and minds' (Joler 2020). In this sense, Zuckerberg's metaverse represents both the latest result of digital extractivism and the *natural extension* of its extractivist logic (Ortiz Freuler & Soria Cruz 2021). Furthermore, as Pasquinelli and Joler brilliantly show, AI is also to be conceived as an instrument of the extractivism of knowledge. In fact, the dependence of AI on the activities of data mining and capture technologies is so systematic that perhaps Artificial Intelligence should be called 'Extracted Intelligence': 'A regime of *knowledge extractivism* (then known as Big Data) gradually employed efficient algorithms to extract "intelligence" from these open sources of data, mainly for the purpose of predicting consumer behaviours and selling ads' (Pasquinelli and Joler 2020: 1266).

After this heterogeneous list of extractivisms that share a common *Weltanschaaung* – the same mentioned by Ferrando in relation to the Anthropocene – it is interesting to recall the concept of noology, as conceived by Deleuze and Guattari in *A Thousand Plateaus*. According to them, noology is the image or representation 'by the State or Society' of what thinking means and of how to think properly. Like the 'Dogmatic Image of Thought'

was for Deleuze a meta-philosophical device that has been shaping the way in which philosophy must universally think, noology is its application to the whole of society and it is meant to shape the way of thinking of everyone at each scale of their life. If 'thought as such is already in conformity with a model that it borrows from the State apparatus, and which defines for it goals and paths, conduits, channels, organs, an entire organon', such a model has its own principles, values and implicit presuppositions or assumptions that orientate a whole society. Noology is thus 'the State-form developed in thought' (Deleuze & Guattari 1987: 374). 'Noology, which is distinct from ideology, is precisely the study of images of thought, and their historicity' (Deleuze & Guattari 1987: 376).

Thus, I suppose we can detect today a particular concretisation of this image, one that converges in what Sara Baranzoni and myself have already called 'an extractivist image of thought' (Baranzoni & Vignola 2022), that would be the epistemic, economic and ontological framework that defines a kind of unique and globalised thought, in its turn based on a colonial and anthropocentric concept of nature, inscribed in the modern project of civilisation. In this vein, Ramón Grosfoguel's theory of epistemological and ontological extractivisms as old and new forms of colonialism becomes crucial, as well as the very South-American theorisation that coined the notion of extractivism, by grounding it specifically in the eco-juridical and postcolonial economic framework.[1] According to scholars such as Svampa (2019) and Gudynas (2009), the distinctive feature of contemporary extractivism lies in the power and mastery of capital over the world of life in general. Contemporary extractivism is thus a system of eco-biopolitical expropriation that reveals paradoxically its necroeconomic dynamics. It is a *bio*political *ne*croeconomy to the extent that, by exploiting and exhausting resources from all species of living beings, it also exhausts the conditions for the reproduction of life in its environment and, consequently, the negentropic proliferation of life. Now, it is possible to find a deep analogy between the necroeconomic eco-biopolitical expropriation produced by traditional extractivisms and the systematic expropriation of citizenship and human rights caused by data extractivism. As Stiegler wrote in Technics and Time 4, not yet published, the ultimate effect of data extractivism is the dissolution of the public sphere:

> The populations of the biosphere, being calculated in totality, as a totality, and permanently, through their actions and their gestures become 'services'. Statistics, the science of the state, is replaced by data science, whose protocols are developed in functional opacity and in the exclusive service of the data economy, as an administration of things in which the res publica as such is dissolved – the public thing, that is law.
>
> (Stiegler unpublished: 129)

By referring to the dissolution of the *res publica*, Stiegler was not only thinking about laws and government policies, but also the state of law of disciplines, institutions, knowledge, citizens, etc. In short, what he denounces is the colonisation of public space, which Rouvroy has described as the effect of algorithmic governmentality and its operations of data extractivism. In this sense, as for Rouvroy the traditional principles that define the *homo juridicus* as the subject of law are being dissolved into the statistics patterns of the *homo numericus* (Rouvroy 2018), we can observe the tendency of the *res publica* to become a *res extracta*, that is to say, a thing which is totally subordinated to algorithmic and financial calculation, to data- and dopa-mining, to the extent that they decide its forms and dynamics.

As Sara Baranzoni (2024) suggested in a recent paper, the goal of algorithmic governmentality is not just putting in place a powerful control of attention and memory, but also intervening *before* the formation of the micropolitical sphere of desire through

1 In general terms, it is possible to refer to extractivism following its original Latin American conceptualisation as 1) mode of appropriation of natural resources, 2) dependent strategy of development, and 3) unsustainable mode of development. Furthermore, Grosfosguel's analyses could also provide a fourth aspect: 4) The act of extraction removes all relationships that make sense of whatever is being extracted (Grosfoguel 2016).

the modulation of what precedes perception and which is tied to the formation of one's sense of the world. In some way, such a pre-emptive power over futurity aims to extract *the virtual*, as everything that has not yet been lived and will not necessarily be lived – but that *could be* lived and is treated as if it were. With regards to the *res publica* becoming *res extracta*, such an extraction of the virtual represents a new step towards the (total) automation of decisions and the consequent avoidance of decision-making processes, and thus contributes to the weakening of the very noetic structures that preside over thinking and knowledge (see Rouvroy 2013; Stiegler 2016). We could therefore also speak about a *noetic extractivism* (Moore 2017), to the extent that the elements that make up the noetic, emotional and cognitive life of individuals, now converted into decontextualised dividual traces, become as such the new extractable raw material of global capitalism.

4. How to Move from the State of Fact to the State of Law? Concepts for Technodiversity

A first sentiment that one might feel, after realising that humanity has become the new extractable raw material of capitalism through data science and data mining, is a deep ontological depression, or what Stiegler called the *mal-être* (ill-being) caused by the denial of the pharmacological power of technology in the history of Being, and in particular of that form of mnemotechnics that he calls 'tertiary retentions', i.e., the exteriorised and materialised memory that, since the lithic industry of the Paleolithic up to the Big Data in our epoch (passing through writing, the printing press, the screens, etc.), allows humanity to be human (or not inhuman) and to conceptualise the very idea of Being:

> Mal-être, ill-being, is certainly a malaise, and a psychosocial malaise, as we have just affirmed – it is a humour, a mood, a Stimmung: a disposition, an 'affective tonality'. But this malaise, which is not simply psychic, is an ill-being in the sense that it stems from a cosmic disorder affecting – and as its illness [mal] – the being of Dasein [...]. This ill-being is not just a malaise because it is not only a mood: it is also and above all what, as the macrocosmic disorder of the biosphere, provokes a dis-integration of configurations that, in the course of the history of truth, and in a fundamental relationship to science, being and evil will constantly impose in the denial of tertiary retention and its primacy – and where this denial characterizes the history of the West that Heidegger called the history of being, and that Nietzsche called nihilism.
>
> (Stiegler 2018b: 196)

When merged within such a digital nihilism, we should be aware that we are not anymore at the 'Party of the Anthropocene': it seems that we are now walking in a quite disoriented way through a kind of totally automatised supermarket, where the merchandise are rights, health, life, or, to be more precise, ourselves. From the party to a totally automatised empty supermarket: this means that there is no longer any unifying grand narrative of humanity, also because humanity itself has become an extractable resource. This seems something like a post-human state of fact, and what is missing is a post-human state of law. While the former represents the perfect context for transhumanist esthetics, economy and

politics, the latter is still an improbable but nevertheless necessary goal of political ecology and post-anthropocentric philosophy of technology.

Now, in this sense, we cannot ignore how the actual philosophical decade seems to be haunted by the specters of AI. The phantasmic order of the discourse that has been structured around AI and its tendency to become an AGI (Artificial General Intelligence) capable of overwhelming human faculties is probably a reflection of an imminent technological revolution, even if still internal to capitalism, because what will change will be neither the material social relations of power, nor the theoretical principles underlying technological developments, which remain unchanged since the first industrial revolution. If, as Jonathan Crary (2022) points out, Western technology never overcame the paleotechnics described by Lewis Mumford, founded on the separation of Nature and Culture, the objectification of the former and the consequent extractivist view of resources, the reason lies probably in our own cosmotechnics, which, on the one hand, is grounded on an extractivist paradigm, and on the other hand has been historically hegemonic by assimilating, but also reducing or even destroying all other alternative forms of technology coming from other cosmotechnics.

According to Yuk Hui, behind every technical system there is the matrix of a cosmology specific to the culture from which it emerges. Each cosmology, that is the articulation of the physical world and the moral dimension of life, then develops its own technodiversity, which implies specific and singular relations between humans, materials, territories and finally the cosmos in general (Hui 2016). From a geopolitical point of view, every technodiversity linked to a non-Western cosmology has been progressively reduced by the hegemony of Western *episteme*. Such a reduction was concretised first through the colonisation of Modernity and its systematic epistemicide (de Sousa Santos 2010) and, today, by computational capitalism, in which all forms of knowledge have been formatted by algorithms, as well as all the other technologies subsumed by the digital as the hegemonic technological tendency of our epoch.

As Yuk Hui wrote, 'Modernisation as globalisation is a process of synchronisation that lets converge different historical temporalities on a single global time axis and prioritizes specific forms of knowledge as productive forces'. In this vein, our own cosmotechnics present technology 'as a mere productive force and capitalist mechanism for increasing surplus value', and through this it 'prevents us from seeing in it the decolonising potential and the need to develop and preserve a technodiversity' (Hui 2020: 12–13). Thus, the radical meaning of technodiversity must lead to putting into question the current mono-technological culture and innovation based on the dualist, extractivist and colonial foundations of the Western techno-scientific paradigm. According to Stiegler, 'the question of technodiversity arises as what should come to counteract a state of fact that argues for a single tendency' (Stiegler 2020: 76). A wide set of authors have already attempted to radically question such a single and entropic tendency of Western monotechnological culture. Namely, Donna Haraway's 'simpoiesis' and 'response-hability', Karen Barad's 'agential realism', Federica Timeto's cyberzoa, are all helpful concepts to reframe technology within technodiversity and to reinscribe participation rather than reinforcing dualism. Nevertheless, Stiegler's taking care of technology, knowledge and noodiversity is still the clearest response to the side effects of Western monotechnological culture. According to Stiegler, noodiversity is the process of noetic differentiation induced by the production of knowledge and its exchanges that generate the idiomacity, cognition and decision-making of individuals as the expression of a singular locality and culture, as well as through different technologies. Since technology is an essential component of thought and noetic life, guaranteeing technodiversity also means for Stiegler defending '*the conditions for a variability capable of reconstituting a noodiversity*' (Stiegler 2020: 76).

In conclusion, the current monotechnological culture, based on the separation of Nature and Culture, the objectification of the former and the extractivist and colonial exploitation of resources, represents a huge obstacle to understanding the problem of the Anthropocene. Confronting the Anthropocene without questioning anthropocentrism, the totalitarianism of calculation, and the extractivist violence risks not only the perpetuation of the anthropocentrism of Modernity but also the affirmation of new forms of colonialism (Hui 2020). In this vein, perhaps, a good way to conclude is to formulate a cosmotechnical principle that could follow Hui's suggestion: instead of extracting without giving back, which is the entropic principle of the destruction of life, to extract by taking care to reproduce life and return what is extracted would be the negentropic principle that Western cosmotechnics should adopt as a first step to preserve biodiversity and noodiversity and to promote technovideristy as the way to ratify that 'technics is the pursuit of life by means other than life' (Stiegler 1998: 137). Technics must continue to be the pursuit of life also in the age of the Anthropocene but in order to bifurcate from it: to escape no more from the party but from the empty supermarket of the Anthropocene.

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Chapter 3

Techno-Medusa A Myth of Our Times

Francesca Ferrando

Adjunct Assistant Professor of Philosophy, NYU-Liberal Studies, New York University, USA

Introduction

We live in the era of Big Data. Technological addiction is not only a behavioral condition, but also an existential obfuscation. In the mind/body dichotomy shared in mainstream worldviews of the 21st century, the internet turns into our social soul. The planet, our collective body, is going through ecological crises, in flows of microplastics, pollution and mindlessness. These are some of the myths of our time. They must be named and faced, even if they have hypnotic eyes, like the ones of Techno-Medusa. While Techno-Medusa is looking for internet connection, a small tree is growing between the boards of an old deck: this is also Techno-Medusa. Existential awareness, resilience and non-judgement are present in the Anthropocene. Hypnosis is not forever: the path to wisdom is everywhere. In this poem and photo-gallery, these motifs are present as reflective mirrors, inspiring awakening to our posthuman condition.

Techno-Medusa

A Myth of Our Times
From the water of the sea,
Techno-Medusa arises, in immortal microplastics.

The snakes in her head are aggressive antennas :Satellites, of technological addiction.

Lost at the shore.
Lost the internet connection:
She is lost.

Her eyes are dry.
Her appetite for video-games is not gone: She needs a connection.

Cyprus has changed;
she can hardly recognize it.
No-one recognizes her.
She sits on the shore, smoking sea-weed.

The mythology of her ex-istence is more real than ever.
Techno-Medusa is here. Now.

The ancient roots of our shad-ows do not disappear:they re-gen-erate forever, until they are healed and transformed.

Techno-Medusa, crea-
ture of plastic, fish and
bio-engineering: Your God-
desses and Gods are gone!
High-tech prophets are
coding You. Scientists are
researching You: The lab mon-
ster that cannot be released;
The chimera that escaped;
The black hole of the human soul.

Techno-Medu-
sa, do You have a soul?
I cannot gaze at Your hypnotic eyes,
and yet, I hear You: "Is my
internet connection my soul?"

Techno-Medusa is search-
ing for internet connection.
Alone at the shore.
She can bite.
She can be dangerous:
She is addicted.

The internet is restored.
Techno-Medusa jumps
into the ocean of Big Data,
to reach Point Nemo.
Pacified, she shares online:
"I am connected, therefore I am".
We will never see her again.

She is in our consciousness.
In our genes.
In our water, in our air.
She is plastic, debris and visions.

She is old satellites, pollut-
ing remote oceanic regions.
She is the primordial chaos and the
new cosmic order.

She is who She is.
In the 21st century:
We are who we are.

Photo 3.1

This image presents the author, Francesca Ferrando, performing as Techno-Medusa in Cyprus, during the Third Annual Conference of the European Culture and Technology Laboratory at the European University of Technology in Limassol, November 18th 2023. In this performance, Techno-Medusa was inviting the audience to “The Party of the Anthropocene”, a party, as ironically announced: “organized by humans for humans. (...) Alive non-human animals are not allowed. Robots are allowed, if accompanied by humans”. The performance was based on a critical understanding of the Anthropocene, in its speciesist and techno-centric outcomes (Ferrando 2016; 2024). Photo by Koutsomichalis, M. 2023.

Photo 3.2

A golf ball in a stream in Upstate New York, United States. Produced, and shortly used, to entertain some humans, this ball is now lost in the woods. For the rest of its physical existence, it will be releasing microplastics in the water, unless it is rescued and properly disposed of. What may seem an innocent act – a lost ball in golf – turns into the far-reaching tentacles of Techno-Medusa in the era of the Anthropocene. Photo by Ferrando, F. 2024.

Photo 3.3

A baby pine tree growing between the boards of an old wooden deck in Upstate New York, United States. In this integration of nature-culture, wasps and birds are also nesting under the deck, finding comfort near humans to avoid other non-human predators. Non-judgement, transformation and resilience are real teachings in the Anthropocene. Techno-Medusa knows: paths of wisdom unfold in the mindful witnessing of everyday life. Photo by Ferrando, F. 2024.

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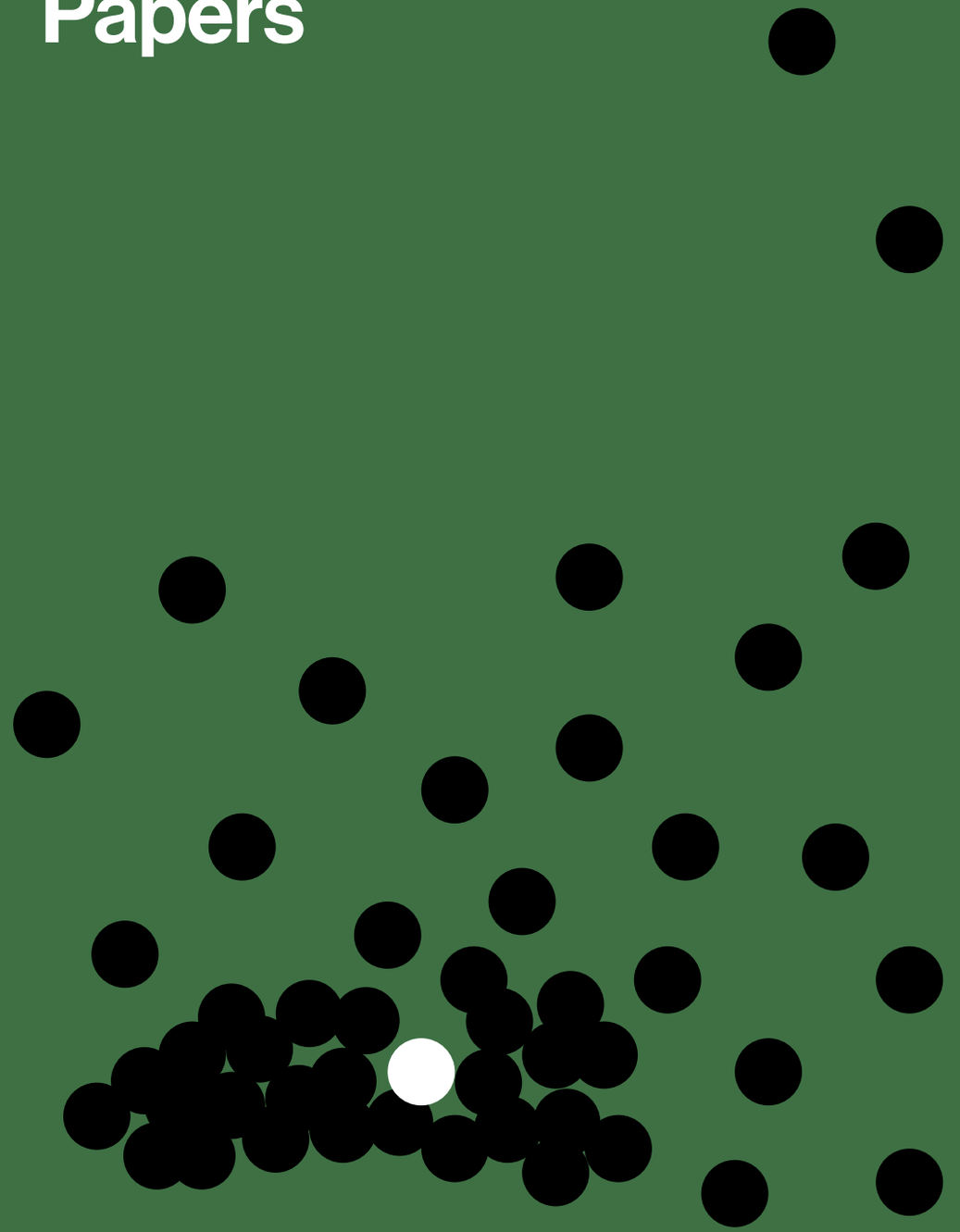
Part 2
Papers



Chapter 4

Nihilism and Finitude in Neuroscience An Approach through Speculative Phenomenology

Evangelos Koumparoudis

Department of Logic, Ethics, and Aesthetics, Sofia University
vkoumparoudis@phls.uni-sofia.bg

Abstract

Over the past decades, advancements in medical technology, particularly functional magnetic resonance imaging (fMRI), have significantly contributed to our understanding of human brain functions and consciousness. One notable framework is computational neuroscience, introduced by Patricia Churchland and colleagues in 1988, which interprets brain function through information-processing properties. However, this approach has been critiqued for promoting neuro-reductionism by equating the brain with the mind and overlooking the social, anthropological, and complex aspects of human behavior. Critics such as Emily Martin, Steven Rose, Laurence J. Kirmayer, and Ian Gold highlight these concerns. To provide a more holistic view, I compare computational neuroscience with the theory of mirror neurons. This theory, advanced by Rizzolatti and Gallese, posits that the body–brain systems of different individuals can share functions, resulting in the mirroring or simulation of brain activities. This perspective offers a relational and embodied understanding of brain function. Additionally, Antonio Damasio's somatic marker hypothesis underscores the essential role of bodily feedback in cognitive processes, highlighting the interconnectedness of body and brain. Beyond these neuroscientific models, I delve into speculative phenomenology, bridging classical phenomenology and neurophenomenology to advocate for a non-correlational approach to our engagement with the world. This approach integrates the participation of both body and brain, addressing the concept of 'dehors' – the chaotic, unknown aspects of existence that shape our being through formalizations and restrictions. This chaos can lead to a collapse of dialectical horizons, a state I term 'asymvatotita'. Drawing on speculative phenomenology, I propose theoretical connections to mental pathologies such as aphantasia, autism, and schizophrenia. This interdisciplinary exploration aims to offer a more comprehensive understanding of human consciousness and behavior by integrating neuroscientific insights with phenomenological perspectives.

Keywords: neuroscience, neurophenomenology, speculative phenomenology, dehors, finitude

Introduction

The problem of consciousness and experience is very old. Various philosophical accounts have been proposed since ancient times, for example by Aristotle, regarding the issue of perceiving what we perceive as an intrinsic property of the soul. The problem of consciousness has been elaborated in Western society from Descartes onwards and is related to the mind–body problem, with his Cartesian interactionism. Through the years of the Enlightenment and German idealism, the problem develops in content and quality with the input of such thinkers as John Locke, Baruch Spinoza, Emmanuel Kant, and Georg Hegel. Beyond the Western models, there are also valuable conceptualizations from Asian and shamanic philosophies which reappear in some contemporary accounts, for example, in experiences in yoga, nirvana, and Zen, as well as the transcendental shamanic experience. In this paper, we stick to more recent philosophical debates. The first concerns findings from fMRI [functional magnetic resonance imaging], EEG [electroencephalogram], and PET [positron emission tomography] scans, which provide us with neuroscientific models and theories on human brain function and consciousness, and the second regards a particular branch of 20th century philosophy called phenomenology.

Concerning the neuroscientific models, although there is a plethora of modeling, such as representational theories, information processing, and higher-order theories, I will stick to the computational model, which can be considered reductive, and two more holistic models involving the whole body and not only the brain, neuron mirror theory and somatic feedback theory. The model of computational neuroscience (Patricia Churchland et al. 1988), conceives of brain function in terms of information-processing properties. I question whether this theory promotes a

form of neuro-reductionism that equates the brain with the mind while neglecting social and anthropological traits and complex phenomena such as human behavior, mainly by considering the work of Emily Martin, Steven Rose, Laurence J. Krimayer, and Ian Gold. I compare these models with the theory of neuron mirrors, which could provide a more intersubjective view and asserts that the body–brain systems of two different individuals share a common function, and thus we have a mirroring or simulation of their respective brain areas (Rizzolatti et al. 1988; Gallese et al. 1996, 2001). Antonio Damasio's somatic feedback theory, which describes the necessary participation of the body, will also be considered (Damasio 2000). I also explore a possible relationship between the two holistic models of classical phenomenology and the theories of Edmund Husserl, Max Scheler, and Maurice Merleau-Ponty. I will further elaborate this relation with the more recent theory of neurophenomenology proposed by Francisco Varela, Evan Thompson, and Shaun Gallagher and Dan Zahavi, enriching the debate on first-person and third-person perceptions of reality, subjective experience, and objective reality. Between subjective experience and objective reality, I will then present a new method called speculative phenomenology.

Classical phenomenology, pioneered by philosophers such as Edmund Husserl, aims to clarify, describe, and make sense of the structures and dynamics of pre-reflective human experience. Husserl's method involves a process of phenomenological reduction, where the researcher brackets or suspends assumptions about the external world. This allows him to focus solely on the essence of the phenomenon itself. Phenomenology reduces a human subject's experiences of a phenomenon to a description of its essence, emphasizing the subjective character of lived experience. Speculative phenomenology takes a different path. Unlike classical phenomenology, which often correlates subjective experience with objective phenomena, speculative phenomenology eschews this correlation. Instead of merely describing phenomena, speculative phenomenology seeks to articulate the reflective character of human experience as it is manifested in language and other creative forms. It delves into the ineffable aspects of life, acknowledging that experience is always more complex than a singular description. In this framework, our engagement with the world demands the active participation of both body and brain. The term *dehors* represents a realm of confusion, the unknown, and chaos. It defies easy formalization and places restrictions on being – a state I refer to as *asymvatotita.* In summary, classical phenomenology seeks to uncover the essence of experience while speculative phenomenology invites us to dance with the enigmatic world beyond, transcending reductionism and embracing the

richness of human existence.

After the presentation of the basic aspects and principles of speculative phenomenology, I will focus on four cases in which human experience can meet a possible finitude. I will try to unravel a possible relation with phenomena and mental pathologies such as aphantasia, autism, and schizophrenia in which human experience and perception change radically. One of the basic assumptions of speculative phenomenology can be implemented in our opening to extremely confusing, unknown, and restrictive givens from the *dehors*, certain formalizations of the chaos in complex environments of experience.

Neuroscientific Models: Comparison and Criticism

The first model considered here is that of computational neuroscience, which beyond its neuroscientific value also has triggered debates in philosophy, the most well-known of which is Patricia Churchland's *Neurophilosophy* (1996). This connectionist model was generated in the late 1980s and in parallel with the programs of early artificial intelligence, such as GOFAI [good old fashioned artificial intelligence], which were the first to propose neuron networks.

According to this model, certain functions of the brain are computational because nervous systems represent the external world. Two fundamental assumptions are essential to the proposed model: first, that sensory information is mapped in spatial maps, e.g., the image of the world in the retina and, second, that most of our information about the representation of sensory information is based on its recording by single neurons (Patricia Churchland et al. 1988). The authors assert that a physical system can be modeled as a computer when its states represent states of other systems. They propose a model of the organization of the nervous system in scales that are interdependent and where their particular function can give us different computational schemes.

This modeling can be considered as promoting a form of neuro-reductionism, of which Emily Martin (2004) makes a double critique. The first concerns the reduction of mind to body as related to the explanatory models of psychological processes in terms of neuronal processes. The second area she critiques is cognitive neuroscience. Since a computer performs brain tasks such as remembering and decision-making, the human brain functions like a computer. Consequently, all kinds of learning within the culture can be reduced to networks of neurons. Furthermore, the products of history, culture, and identity now can be reduced to brain functions. In this way, 'culture' is reduced to 'nature'.

Steven Rose (2012) proposes that the problem with neuro-reductionism is that the brain is equated with the mind; this has to do with the relation between parts and wholes. It is not the brain that creates concepts or acquires knowledge, but rather people using their brains. In other words, I need my brain to think, but it is I, not my brain, who thinks. Rose proposes that recent findings on mirror neurons may provide a point of view that encapsulates the fact that human consciousness is based on the interactions of biological co-evolutionary processes and culture. This view conceives of human biology as inseparable from culture and humans as biosocial creatures. Finally, Laurence J. Kirmayer and Ian Gold (2012), against this form of reductionism, propose that the higher levels of behavior may not be solely dependent on lower levels but also on an emerging macro level, including complex behaviors, reproduction, self-repair, and adaptation to new environments, that envelops the environmental context.

A neuroscientific model that can be considered more holistic than the computational model is that of mirror neurons, which introduces two important notions concerning philosophy, intersubjectivity and intentionality. The studies in F5 neurons in macaque monkeys by Rizzolati et al. (1988), later identified as neuron mirrors by Gallese et al. (1996), triggered the debate over the neuroscientific basis of social cognition and the possibility of intersubjectivity. According to Gallese (2001), mirror neuron activity is 'a fundamental mechanism at the basis of the experiential understanding of others' actions'. In general, this theory claims that since the body–brain systems of two individuals share a common function, there is a possibility of mirroring or simulation of their respective brain areas. Gallese et al. (1996), after recording the electrical activity of 532 neurons in the F5 area in macaque monkeys, reexamined data which proved that the neurons in this area discharged using goal-directed activity. Furthermore, Gallese et al. (2004) provide us with a unifying neural hypothesis on how individuals understand the actions and emotions of others. Their main assumption is that of the activation of a mirror neuron system. There is a similar mechanism that involves the activation of viscero-motor centers. Gallese (2001), in his shared manifold hypothesis, proposes that the capacity for understanding others as intentional agents, beyond our mental and linguistic competence, is based on the relational nature of the action. His proposition is a fusion of the findings of classical neuroscience and the phenomenological notion of empathy.

Also, worth mentioning is Damasio's 2000 model, which involves two important features: first, the role of the emotions and, second, the participation of the whole body. The region of the brain involved in the modeling is the prefrontal cortex. Damasio makes a somatic marker hypothesis, according to which physiological

reactions like shifts in autonomic nervous system activity tag previous emotionally significant events. These feelings are important in decision-making. Furthermore, there is an as-if loop: the brain areas that evaluate the stimulus, the amygdala and the prefrontal cortices, can directly signal the somatosensory cortices instead of triggering bodily activity.

Classical Phenomenology, Speculative Phenomenology, and their Relation to Neuroscience

a) Classical Phenomenology and Neurophenomenology

In this section, I first provide a short overview of the various conceptualizations of the phenomenon of experience with a brief mention of the main representatives of classical phenomenology, Husserl, Scheler, and Merleau-Ponty. Husserl introduces a theory of empathy that presupposes the sense of others as well as gives serious attention to intentionality, intentionally directing oneself to objects and others. Scheler proposes the other (person) as a topos of experience; we grasp others immediately through a primitive givenness. Merleau-Ponty argues that the relation between infants and their ability of perception and proprioception shapes our experience. Furthermore, he emphasizes the role of embodied cognition, that our consciousness and our opening to the world necessarily demand the participation of the body. After presenting the main ideas of classical phenomenology, I elaborate on a branch of neuroscience and philosophy called neurophenomenology, which started in the mid-1990s with the seminal remarks and theory of Varela (1996), who introduces methods and formulas to approach the phenomenon of experience. More particularly, he analyzes the relation between our first-person subjective experience and third-person objective reality. I continue with a special mention of Thompson, who is interested in embodied cognition, phenomenology, and cross-cultural, especially south and East Asian, philosophy. Finally, I refer to Shaun Gallaher and Dan Zahavi's *The Phenomenological Mind: An Introduction to Philosophy of Mind and Cognitive Science* (2008), one of the most valuable attempts to bridge phenomenology and cognitive science.

For Husserl, any grasp of others as objects takes as its essential characteristic the appreciation of them as experiential subjects. In his transcendental theory of empathy, we see his 'reduction to the sphere of ownness', a discarding of the experiential structures that incorporate or presuppose a sense of others, what the world is from 'all constitutional effects of intentionality relating immediately or mediately to other subjectivity'. For Max Scheler, the other is already given as 'one like me', beyond any transference of feeling between self and other. Not an internal

consciousness that shapes a perceivable body, the other is rather a topos of experience. Experience presents itself in the visible expressions of the other and is grasped as immediacy. It is in the blush that we perceive shame, in the laughter joy, etc. This is the 'primitive givenness' of others (Ratcliffe 2006). Merleau-Ponty bases his intersubjective understanding on how infants relate to others. The response of young infants to facial expressions and their ability to imitate them do not relate to inference or analogy; infants do not have the developed perceptual appreciation of their bodies required to map others' actions on their own, so there should be a direct mapping between perception and proprioception (Cullen 1994).

Varela (1996) responds to David Chalmers's various accounts concerning the hard problem of consciousness. Chalmers introduced the notions of phenomenal consciousness and qualia as essential to our experience. Phenomenal consciousness means to be conscious, to realize that someone participates in the phenomenon of experience, while qualia are the necessary components of the experience which are properties of the objects of experience, for example, the odor in smell. Varela takes as essential the role of first-person experience, or subjective experience, in our relation between first-person and third-person objective reality; he introduces the method of neurophenomenology to investigate this first-person experiencing and conceiving objective reality. He proceeds to a critical overview of various neuroscientific models, such as computational neuroscience and models with a functionalistic background, and then elaborates a new model which also demands specific methods of training, imaging, and experience storytelling based on classical phenomenology and, more particularly, the philosophy of Husserl, Merleau-Ponty, and Hubert Dreyfus. Then he presents case studies in which the model is implemented and also specific realms such as perceptual filling-in and emotion.

Thompson, in his *Waking, Dreaming, Being: Self and Consciousness in Neuroscience, Meditation, and Philosophy*, asserts that the self is a process, not a thing or entity. The experiential process is in constant change. In the philosophy of Indian yogic traditions and Buddhism, he distinguishes three broad categories of consciousness: awareness, the contents of awareness, and how we experience some of these contents of awareness. This threefold awareness is similar to the Indian tradition of I-making (*ahamkāra*), which Thomson relates to cognitive science. In yogic traditions, meditation focuses on a single object, and, at the same time, the practitioner becomes aware of the whole experience. It permits the moment-to-moment awareness of singular fluctuations of attention and emotion. The first chapter of the book deals with luminosity, the capacity of the

consciousness to be aware of outer world experience when awake and of inner world experience when dreaming. The second chapter is devoted to attention and perception in the waking state. The third chapter addresses the question of whether the basic nature of consciousness as pure awareness transcends the brain and living body, as Indian and Tibetan philosophers traditionally claim, or is dependent on the brain and living body. Chapters 4, 5, and 6 deal with sleep and lucid dreaming and chapter 7 with out-of-body experiences. Chapter 8 questions whether consciousness is present in deep sleep and dreamless sleep. Chapter 9 explores what happens to consciousness after death and during near-death experiences. Chapter 10, important to our study, introduces the term neuronihilism to describe the popular view in neuroscience that the self is just an illusion of the brain. Thomson, contrary to this view, proposes an enactivist account of the self, where it is in a process of constant construction and is not an illusion. Thomson follows different paths to support this view, from cognitive science and neuroscience, as well as biology and also the Madhyamaka school of Buddhist philosophy.

Gallaher and Zahavi, in their book, start with the methods and experiments neuroscientists use to explain experience; they question whether they can rely on the theories of phenomenology. In the following chapters, they explore the phenomenon of consciousness, as well as particular aspects of it, such as the perception of time and temporality. Then they look deeply at the phenomenon of consciousness far from Cartesian models and seek those emphasizing embodied cognition. Chapter 6 is devoted to intentionality and chapter 7 to the distinction between the lived body and the objective body. Chapter 8 deals with certain phenomenological distinctions between the sense of agency and the sense of ownership for bodily movement. Chapter 9 explores models of simulation and intersubjectivity. The last chapter deals with the concept of the self.

b) Speculative Phenomenology and Cases of Finitude

To understand speculative phenomenology, I would first like to introduce the concept *dehors*. The exact translation from French is 'outside'. In French, the word *hors* is also used to describe the outside, the exterior, but the prefix *de* encloses a local determinateness, so it could be better translated as 'from the outside'; we use it as an adverb, not an adjective. It is similar to the Greek ἐξωθεν (ad), which means 'from the outside to the inside'. *Dehors* is practically the field in which speculative phenomenology finds its application; this phenomenology is a method through which we become partakers of this *dehors*.

In our conception, it has a four-folded sense: 1) It is used to describe its *apriori* character. (Principle one of the proposed scheme of logic: Everything is given from *dehors*.) 2) Dehors produces discrete *morphai* that are the components of chaoids. Chaoids or random variables are random assemblages of random '*morphai*'. These *morphai* are being recorded to the recording surface and then inwardized in our process of Presentation to Representation to Determination or Presentation to Determination to Representation. It is the Being-Recorded and Being-Inwardized from the outside. 3) It is nearly synonymous with chaos, but more exactly an overall state in which chaos tries to be formalized to adopt certain characteristics, e.g. mediate-fully-determined subjectified, and on the other hand, it describes the same process of being part of chaos or *dehors*. Being approaches chaos through its formalized form that is *dehors*. 4) *Dehors* is also a synonym of the confusing, the unknown, the transgressive, the undetermined, and the non-linear of the dynamic.

Speculative phenomenology also has three principles: **Principle one:** Everything is given from *dehors*. **Principle two:** Everything has to do with the passage from presentation to representation (sign to signifier to signified). **Principle three:** Every particle of the assemblage has to be determined. If it has not been determined, then it cannot be recorded on the map, so it passes as lacking. But the molar has a *morphe* and also is fully functional. The problem is on the molecular level where the lacking belongs. But the molar has as a subset the molecular, so to proceed, the lacking either has to be determined or remain in a plane of transgression; the process stops when we do not have feedback from the lacking particles. But to have becoming, something has to be lacking or not to have been determined.

The method of speculative phenomenology is presented in the following images. In every judgment, we use primary signifiers that are posed arbitrarily. Then there is a process of presentation, representation, and determination or presentation, determination, and representation. During this process, the objects of our experiencing are under the constant effect of the chaoids; they may be static or change significantly depending on the complexity of the *dehors*. The more complex, confusing, or unknown the *dehors* is, the more its formalizations may affect the object of experience. But beyond this effect, the primary signifier there will be contained in the process as well as the sum of the representations until one point of the process. It also contains the lacking particles that have not been determined by our consciousness. The chaoids that seize the object contain discrete particles, discrete *morphai*; the object of experience is differentiated qualitatively and quantitatively by the use of primary signifiers or their combinations. For example, we may have a line, a straight line, or two lines, a square, a cube,

etc. There are two cases: either the object is fully determined and is connected with other flows, for example, when we finally have a cube, on a table, or something \has a transgressive determination. In this case, there may not be further breathing space for more determinations, and the object is fully determined, or this may trigger a series of infinite determinations, for example, the first line, be it a very perplexed shape of lines or a very perplexed abstract painting, etc. At every point of the process, we have a certain tautology between the lacking undetermined particles and the fully determined particles. If the process of becoming then continues accordingly, we should have at least one determined object and one lacking or undetermined unless we have a full determination, so the process of becoming stops.

Figure 4.1 Credit: Artemis Papachristou

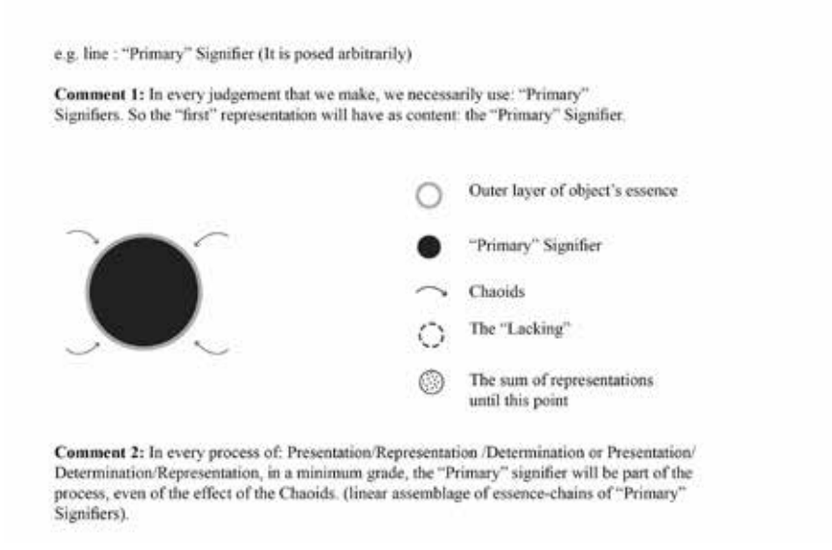
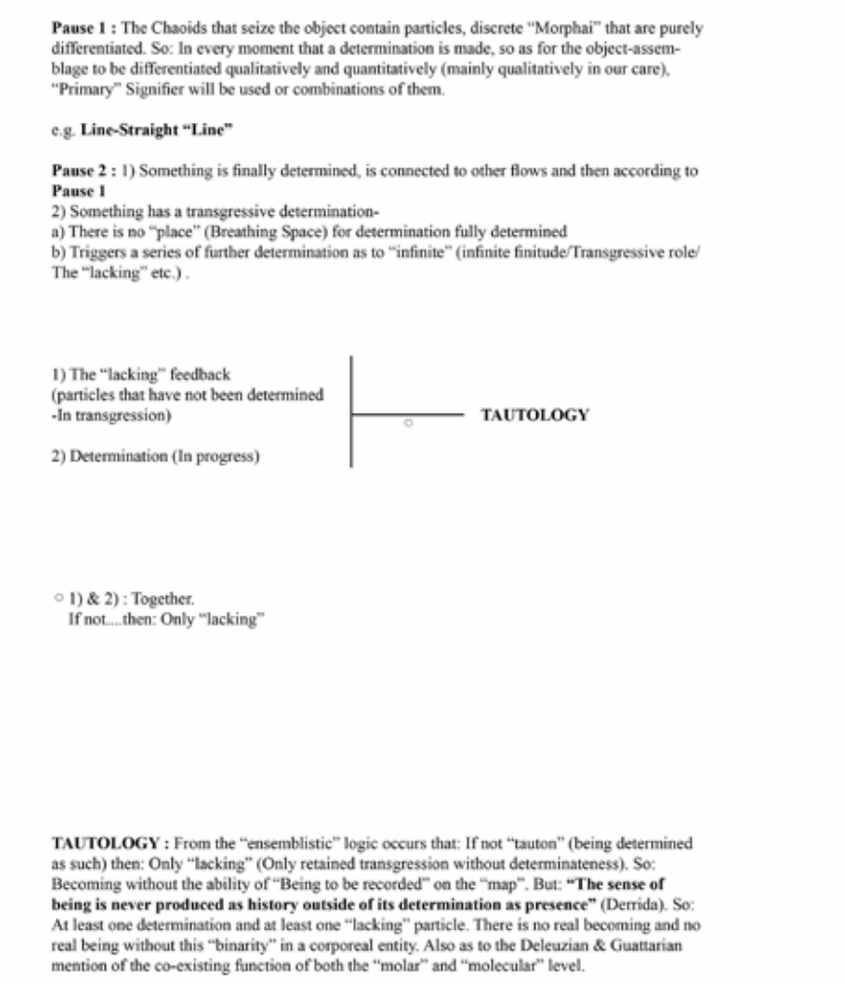


Figure 4.2 Credit: Artemis Papachristou



While classical phenomenology emphasizes the role of intentionality, intersubjectivity and empathy, which, as will be shown, play a role in the understanding of some mental pathologies like autism and schizophrenia, and provide theoretical grounding for understanding the phenomenon of consciousness and experience, as articulated by neurophenomenologists, speculative phenomenology follows a different pathway. It deals with the experience as itself, how the various objects of experience (and consciousness) as givens of the *dehors*, change and transform under the effect of the chaoids. It is a process of a morphogentic becoming, which has certain dynamics and according to the

complexity of *dehors* the formalizations of experience can vary. It does not search for primary qualia, for example the odor in smell, or the sound in an auditory experience. It is more like decoding and understanding the variations of a complex aroma or the variations of a complex musical synthesis. So, it is important to remember that some primary signifiers are always contained as the process of presentation/representation/determination goes on, combinations of primary signifiers under qualitative and quantitative states are those which help in the final decoding. Subsequently in the case of a musical synthesis, we can understand the notes, the pauses, the harmonic combinations etc. and then experience the whole as such, or in certain cases in which we face the finitude and reach an *asymvatotita*, a part of it. Speculative phenomenology of course emphasizes the role that embodied cognition plays in the experience. Since we speak about the recording surface which is the substrate between the givens of the *dehors* and the decoding, how the outside is inwardized, we can understand that it is our senses, our body and our neurons, brain structures etc. that play this role. Speculative phenomenology could also find a place for application, since these experiences are more complex and dynamic than the usual. Speculative phenomenology is the opening to the world through the experience, how in a manner we become participants in the phenomenon of experience and the cosmic experience at once. Being decodes the givens of the *dehors* and becomes *dehors*.

Now I will present four cases of finitude in this process which, as described above, may lead to *asymvatotita*.

Case 1: A mediate, fully determined, subjectified *dehors* and a fully subjectified being. In this case, which is the most prevalent, the context over-determines in such a way that the being cannot make use of the primary signifiers, or *morphai*. This happens because the production of *morphai* by the dehors is relatively greater than the consumption that being has to decode. This leads to a being in absolute temporary self-relation (nihilism) that can only see being as itself and, of course, it can grasp only the assemblage of presentations and representations and also has an illusory insight into the lacking or about to be presented as to the point of the blockage. This case leads to total asymavatotita and no representation of the world.

Case 2: A mediate, fully determined, subjectified *dehors* and a transgressive, non-determined being. In this case, the production of *morphai* from *dehors* has a constant rate; the rate of collection of the *morphai* by being is also constant, but the rate of inwardizing and representing fluctuates. We have a continuous use of primary signifiers and their combination in the form of a single transition, e.g. from line to 'Line', two lines to 'two lines'. For example, with 'this is a house', we can only see the bricks, the

wood, the concrete, etc., but not the house as a whole. We see only the chains of primary signifiers, floating in porridge. Being also may see a part or parts of the whole depending on the percentage of the primary signifier relations. For instance, I see porridge, a window of a house, etc. Finally, we have lacking parts regarding the incapability of grasping the whole; the rupture is made to the final determination, the whole.

Case 3: An immediate, undetermined, transgressive *dehors* and a mediate, fully determined, subjectified being. In this case, *dehors* produces *morphai* that may be discrete but have a transitional character; they may even be recorded on the recording surface, but being in its mediacy cannot collect them so that they may be not inwardized. So, being may: 1) collect and discriminate the *morphai* and include them in an assemblage, so the process continues, 2) enact the process described above for a subset of the *morphai* recorded as to this point on a recording surface, so there is a vast part of the recording surface that remains static but still exists, or, finally 3) not collect anything from the recording surface, so now we talk of a pure being without becoming. In this case, the lacking parts occur in between. What is this? It may be a window, a house, a neighborhood, etc.

Case 4: An immediate, undetermined, transgressive *dehors* and an immediate, undetermined, transgressive being. In this case, the *morphai* are recorded on the recording surface, but they cannot be and are not inwardized in any way. The only case is to flee from the recording surface and pass as transitional singletons to *dehors* again without any partaking of being. A quasi form of becoming without being again, this is made not because of a phase difference but because of a total difference of the receiver; being is just a passive conductor, a cable that the chains of primary signifiers are passively passing through, a passive synthesis.

I now unravel a possible relationship between this type of phenomenology and certain mental pathologies. I should state that this relationship is not supported by evidence, but it could foster a dialogue between phenomenology and neuroscience. As I said above, speculative phenomenology mainly finds application in very complex and unknown environments. The first pathology is aphantasia, the inability to create mental imagery. The opposite of aphantasia is hyperphantasia, the ability to create mental imagery with the greatest detail. Aphantasia is associated with prosopagnosia and a reduction in autobiographical memory, while hyperphantasia is associated with synesthesia. Aphantastics, while lacking voluntary visualizations, can still have involuntary visualizations, such as dreams (Zeman et al. 2015). Aphantasia is also linked with the incapability of transforming auditory experience into visual experience. In this case, we could speak of a total *asymavatotita* and an inability to mentally represent the world. This

is similar to case 1, but the context is so restrictive and relevant to the amount of *morphai* that *dehors* produces. In Case 4, also close to that phenomenon, the *dehors* produces *morphai* but cannot be recorded and represented; they just pass due to a total difference of the receiver. It is a form of passive synthesis, which may also be linked with the involuntary representations of aphantastics, such as dreams. Classical phenolomenlogy even neurophenomenology, do not deal that much with such restrictive cases. Aphantasia as the inability to create mental imagery could be explained by Case 1 in which we have the total *asymvatotita*, an inability to represent the world. Being is the receiver of a huge number of givens by the dehors, the production of a huge amount of *morphai*. Being is placed in absolute self-reference and is incapable in participating in the phenomenon of experience or better representation. Imagine an aphantastic who cannot create the mental imagery of a table for example. If we follow Case 1, the aphantastic cannot even make use of primary signifiers, for example the lines that shape the table. He may conceive different kinds of visual representations, for example different kinds of lines of other objects or more perplexed combinations of lines and shapes, but this great variety of *morphai* cannot be interrelated with a final determination, the final mental imagery of a table as such. If we follow Case 4, the passive synthesis, the aphantastic may experience the primary signifiers that pass as transitional singletons. The lines of a table come and pass by, the material of construction as well, being does not partake in the process; consequently, there is not mental imagery. As we said since the being is exposed to *morphai*, although in a form of just passing by, subsequently involuntary visualizations such as dreams may be explained.

Autism and schizophrenia are linked with variable changes in perception. In autism, there may be anomalous perceptions distinct from the hallucinations and delusions more common in schizophrenia. Changes in autism may concern the level of intensity of the experience, such as a stronger taste, a non-shared sensory experience, or an inherently unusual or distorted sensual experience. In schizophrenia, beyond hallucinations and deluded experiences, there is also a difficulty in understanding others and, more particularly, the emotions of others, according to their facial expressions (Milne et al. 2017; Cook et al. 2012). There is a contemporary view which regards autism as a disorder of the self, intentionality and intersubjectivity. I, we and the world are afflicted in the schizophrenic autism. Following classical phenomenology, experience is a kind of basic self-manifestation. The pre-reflective immersion in the world is connected with intentionality. This intentionality may be thematic, for example I am aware of this house, and non-reflective (operative intentionality), for example seeing this particular house. Finally, phenomenology distinguishes

between intersubjectivity in the sense of grasping the emotions, beliefs, experiences of another, and intersubjectivity in the more fundamental sense of a pre-reflective attunement with others that depends on our shared engagement in a common world. All these are severely disturbed in autism: patients complain about, not feeling themselves, turning into inhumans, having sense of an inner void and loss and a lack of inner nucleus. In general, experience is more observed than it is lived. (Parnas and Zahavi 2002). If we follow speculative phenomenology, according to Case 2, the differences in intensity can be explained through the continuous use of primary signifiers and their combination in different qualitative and quantitative grades. We have a continuous use of primary signifiers and their combination in the form of a single transition; for example, a smell, a very strong smell, a very strong annoying smell, etc. But as we have pointed out, the rupture is at the final determination of the whole. If this very strong annoying smell is decoded by an autist (or schizophrenic) as, for example, threatening or terrifying connected with a smelly monster chasing him, then the final determination, the whole may lead to a totally delusional experience. If we follow Case 3, as we have pointed out the lacking parts occur in between. If we combine this with the thematic and operative intentionality of classical phenomenology, we may speculate and say that the autist (or schizophrenic) may for example have an insight of a house, but not of this particular house, or even of a house at all, and still question what is his object of experience. In another explanation, since the being 1) may collect the *morphai* and include them in an assemblage, 2) enact the process only to a subset of the recoding surface and a part remains static, or more particularly 3) when we have a pure being without becoming, the complaint of loss, void or lack of inner nucleus may be linked with these speculations. The autist (or schizophrenic) for example may experience a journey in the woods. He collects all the *morphai* experienced from the woods, for example the trees, the flowers etc., and includes them in the assemblage called: Woods. However, according to the second subcategory some other experiences are included only to a subset, for example the colors of the trees or the flowers etc. In the case of the subcategory three he may not notice whether some trees are moving with the wind or some flowers have lost their petals etc. and not collect anything from the recording surface, so we have the pure being the observer of the experience but no becoming. If the autist cannot grasp, let us say, the whole of experience described in different qualitative and quantitative grades above, he may feel completely detached from his experience in the woods, he may participate in the experience but more like an observer who feels lost or in a void and tends to question everything.

Conclusions

This paper has explored the intricate relationships between phenomenology, neurophenomenology, and speculative phenomenology, and their intersections with neuroscience, cognitive science, and various mental pathologies, alongside influences from Eastern philosophies, particularly Buddhism. By examining reductive theories like computational neuroscience and contrasting them with holistic models such as mirror neuron theory and somatic feedback theory, this study underscores the importance of integrating subjective and objective perspectives in understanding human consciousness and behavior.

The reductive computational model of neuroscience, which views brain function through the lens of information processing, has been critiqued for its tendency toward neuro-reductionism, potentially neglecting the complex social, anthropological, and behavioral aspects of human experience. In contrast, mirror neuron theory and the somatic marker hypothesis offer more holistic perspectives by emphasizing the intersubjective and embodied nature of brain function.

Husserl's transcendental theory of empathy and his focus on intentionality explain how individuals experience and relate to others. Scheler's concept of the primitive givenness of others suggests an immediate grasp of others through visible expressions, without the need for emotional transference. Merleau-Ponty emphasizes the embodied nature of perception and cognition, showing how infants directly map perception to proprioception, underlining the embodied connection between self and others. These philosophical insights are integrated with neuroscientific models through neurophenomenology, which bridges subjective and objective perspectives to address complex issues like consciousness, emphasizing the interconnectedness of body and mind.

Neurophenomenology, introduced by Francisco Varela, emphasizes the importance of first-person experience in understanding consciousness. By integrating classical phenomenology with neuroscience, neurophenomenology seeks to address the 'hard problem' of consciousness – how subjective experience arises from neural processes. Varela's approach combines methods from phenomenology, such as the philosophy of Husserl and Merleau-Ponty, with empirical neuroscience to explore how lived experiences correlate with brain activity. This method highlights the significance of subjective experiences in cognitive science, advocating for a balanced view that incorporates both first-person and third-person perspectives.

Evan Thompson's work in *Waking, Dreaming, Being* furthers the discussion by examining consciousness through the lens of Indian yogic traditions and Buddhism, proposing that the self is a

dynamic process rather than a static entity. Thompson's enactivist account emphasizes the continuous construction of the self, integrating insights from cognitive science, neuroscience, and Eastern philosophy to propose a holistic view of consciousness.

Shaun Gallagher and Dan Zahavi's contributions in *The Phenomenological Mind* highlight the need to integrate phenomenology with cognitive science. They argue for the importance of embodied cognition, intentionality, and intersubjectivity in understanding consciousness. Their work provides a comprehensive exploration of how phenomenological methods can inform and be informed by empirical research, particularly in areas such as time perception, the sense of agency, and the sense of ownership.

Speculative phenomenology, as a novel approach presented in this paper, delves into the reflective character of human experience beyond mere description. Unlike classical phenomenology, which correlates subjective experience with objective phenomena, speculative phenomenology embraces the complexity and dynamic nature of human experience, particularly in environments characterized by confusion, restriction, and the unknown, referred to as '*dehors*'. This approach provides possible insights into mental pathologies such as aphantasia, autism, and schizophrenia, which involve altered perceptions and experiences. Speculative phenomenology's emphasis on embodied cognition and the dynamic interaction between the brain and body offers a comprehensive framework for understanding these conditions.

Finally, this paper calls for continued dialogue between phenomenology and neuroscience. The exploration of speculative phenomenology enriches our understanding of the complex nature of human existence, encouraging the development of more holistic approaches in both cognitive science and mental health research.

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Chapter 5

From Enlightenment to Sustainment

Denis Maraž

Research Assistant, Science and Research Centre Koper, Slovenia;
PhD candidate, Faculty of Social Sciences, University of Ljubljana
maraz.denis@gmail.com

Abstract

The purpose of exploring the parallels between the Enlightenment and Sustainment is to offer a perspective for reflection on the current socio-ecological crisis. Although it is dominantly framed as the end of nature, at the heart of man's preoccupations lies the fear of losing the existential conditions of his own existence. While the argument of the Anthropocene two decades ago offered a much-needed spark for collective action, it also revealed and brought forth the constitutive lack of the concept and sparked reconsiderations of approaches and conceptual framings of existing environmental policies. The crisis turns out to be at least as much a social-ecological one as it is an onto-epistemological one. In other words, it is rooted precisely in the form of the relationship between nature and man, where both are mutually constructed. This relation becomes the reality that we humans call the world.

The dominant conception of the world, still framed by the human/nature dualism, is addressed by the concept of world-ecology, in which ecology is framed as a historicist interplay between the two. Man is the one who through his work alters the time- and space-specific socio-ecological metabolism – the metabolic flow of energy and materials between man and the environment. At the level of hegemonic discursive practice, the current understanding of metabolism is framed by sustainability and the discourse of sustainable development.

We are interested in re-thinking the 'now' of our time, our understanding of reality and the subject's role within it. To portray the present time as a relation to reality rather than as a new era, we first rely on the concept of Sustainment. At its core, the concept critiques the tendency to sustain the unsustainable under the guise of sustainability. Tony Fry's juxtaposition of Sustainment with the Enlightenment already hints at a resonance with that historical period. By evoking this era, he wants to show the need for a prefigurative project that will allow a shift from the current status quo.

Keywords: end, world-ecology, Sustainment, Enlightenment, use of reason

Introduction

On one hand, the Enlightenment has been blamed for many things, from the French Revolution and totalitarianism to objectifying nature, individualism and the most aggressive aspects of capitalism (Schmidt 1996: 1). On the other hand, it has raised essential questions about the public and private use of reason (Schmidt 1996: 5), the use of reason as a foundation for political rule (Schmidt 1996: 7–9) and role of criticism and close examination of the mode of reasoning, specific to the era itself. It could be argued that it spans the period from the publication of Descartes' *Treatise on Method* in 1637 to the death of Immanuel Kant in 1804, a period marked by scientific discoveries and revolutions that fostered the shift in our understanding of the world. As Cassirer puts it, 'for this age, knowledge of its own activity, intellectual self-examination, and foresight are the proper function and essential task of thought [...] where thought not only seeks new, hitherto unknown goals, but it wants to know where is it going and to determine for itself the direction of its journey [...] Time and again thought returns to its point of departure (1998: 12).

We can easily find ourselves in these few lines. Since the changing conditions of our existence demand a reconsideration of essential epistemological foundations, we extend Fry's observation about resonances between Enlightenment and Sustainment through Foucault's text 'What is Enlightenment?' (Foucault 1984), which reads Kant's text 'Answering the question: What is Enlightenment?' (Kant 1987) as an attitude of modernity. The heart of this attitude, which can also be read as an attitude towards our present, lies precisely in the ethos of a permanent critique of each historical period. We conclude with a consideration that applies this permanent critique to the form of thought as it has maintained itself from the Enlightenment to the present day.

We are in a kind of between-times, when the old is dying and the new cannot be born yet (Gramsci 1971: 276). We experience it as life at the end of time (Žižek 2010) and our thoughts are increasingly preoccupied with the end itself and the desire to preserve the present conditions of life against predicted apocalyptic scenarios. But the history shows that the world is probably not ending for the first time. In science, the world is changing with a shift in the conception of the world. In the period of the so-called scientific revolution, the epistemic rift occurs with the Copernican revolution and the introduction of the heliocentric system (and continues in revolutionary development from Galileo

to Newton) (Tomšič 2021: 56–66). The relationship has changed dramatically: in the new cosmological model, the Earth is no longer at the centre of the Universe, but orbits the Sun. The world ended for the second time with Darwin and the introduction of the evolutionary model in biology (Tomšič 2022: 111). Now, man himself was no longer at the centre of the evolution of life on Earth. He became one of the species with a past and a future, with internal laws of evolution, which could have heterogeneous sources. Not only were we, as humanity, no longer at the centre, we had become a 'non-one'. When this happened for the third time, man ceased to be master of his own house. Freudian psychoanalytic practice and theory decentralised thought itself; consciousness lost its primary position in the psychic life of man (Tomšič 2022: 111). By observing the world around it and moving from the outside inwards, the human species became increasingly conscious of its position in the fabric of life.

In addition to the end, the world is the second concept in question. The scientific revolution, with the advent of modern physics, introduced the notion of infinity, whereby the end of the world meant, above all, the end of finite reality (Tomšič 2021: 66). This, in turn, triggered a shift in the understanding of the world in two key respects: as an everyday interpretation of external reality and as an epistemic discipline, shaping the paradigm of scientific thought. In essence, it prompted an epistemic rupture necessitating the development of a new social order. However, history unfolds not as a linear progression but as an interweaving of various streams of thought, perceptions, and practices that cyclically influence one another. Since scientific thought is always embedded in and intertwined with social, political and economic conditions and power relations, epistemic ruptures resonate in society with different time periods, creating the coexistence of different temporalities or layers of time (Hellerma 2020: 194).

With the aim of shedding new light on the finitude of the present world, the first part of the text begins with a critique of the Anthropocene. We look at the intertwining of the basic entities of nature and humanity through the concept of world-ecology, which offers us a basis for criticising the argument of the Anthropocene. We proceed with Fry's proposal of Sustainment as a new Enlightenment. In the latter, we do not delve into the extensive history of the period, but rather focus on Foucault's reading of Kant's essay 'Answering the Question: What is Enlightenment?', from which we discern three key lines connecting the various 'nows'. The readings reveal to us the duality of the Anthropocene as an expression of modernity and as an expression of contemporaneity.

Where Are We and Where Are We Not?

At the turn of the millennium, Nobel laureates in atmospheric chemistry Paul Crutzen and Eugene F. Stoermer proposed a new geological era. In Global Change Newsletter N.41, published by The International Geosphere-Biosphere Program (IGBP), they presented a short article that begins with a brief introduction to the previous geological era, the Holocene, meaning 'recent whole'. During this 'recent whole', which lasted about 12,000 years, 'the activities of mankind gradually grew into an important geological and morphological force, which was recognized early on by many scientists' (Crutzen and Stoermer 2000: 17). This period enabled the development of human societies with relatively stable climatic and environmental conditions (Swyngedouw 2011: 253). But due to the increasing impact of human activities on the Earth and the atmosphere at all, including global levels, it becomes imperative to emphasise the central role of humanity in geology and ecology. For this purpose, they propose a new geological era,[1] which they call the Anthropocene (Crutzen and Stoermer 2000: 17).

As Moore (2016: 80) highlights, the concept of the Anthropocene has two lives. In one lifetime, it stepped out of the world of the university and into the broader public space, sparking lively dialogues about humanity's role and place in the web of life. While debates on humanity's environmental impact have long been stressed in critical academic and activist circles, the Anthropocene concept injected much-needed momentum for policy reform. Yet, political and policy reorientation unfolded within the realm of asymmetrical power and knowledge relations, entrenched in post-political conditions. Nevertheless, there exists a potential to reclaim the essence of the Anthropocene concept, namely to the call for a new modernity, which fully supports the entanglement between human and non-human and takes responsibility for its nurturing (Latour in Swyngedouw 2011: 254). In this interweaving, the two ways of human existence are clarified – we are both a geophysical force and political actors (Chakrabarty 2012: 14). The awareness that we are the subjects of further co-development of socio-ecological systems (Swyngedouw 2011) is framed in the current conditions by the necessity determined by the temporal moment framed through the technocratic regime of sustainable development centred in sustainability. As a cultural-aesthetic regime, it closes several gaps that need to be reflected in order to guide socio-ecological development in harmony with ecological

1 On March 26, 2024, the International Union of Geological Sciences (IUGS) rejected the Anthropocene proposal as a formal unit of Geological Time Scale (International Commission on Stratigraphy 2024).

conditions. It is precisely these aesthetic[2] closures[3] that invite us to consider the three levels, which we see as a necessary constitutive lack within the Anthropocene argument. First, there is the meta-level, the universalization of basic entities – neither humanity nor nature is one,[4] but many (Blaser 2009); secondly, the entanglement with a specific mode of production, namely capitalism, that has caused the devastation of the environment (and the human psyche); third, the depoliticizing influence of apocalyptic necessity, which eliminates thinking at the expense of action.

We argue that the second and third aesthetic closures can be traced back to the essential premise, implicated in the first constitutive lack. Universalisation of basic entities, humanity and nature, functions as homogenisation of heterogenous modes of being and has historical roots in the period of scientific revolution. The term nature acquired different meanings through Western philosophy and the overview goes beyond the scope of this article. Nevertheless, if we can say so, the invention of nature happened in the time of the pre-Socratics with the presupposition of an internal order of things existing, that can be discovered through observation and deduction (Arias-Maldonado 2015:21), which brought a far-reaching distinction between outside and inside and introduced the notion that nature is consciously designed to fit human needs (Glacken in Arias-Maldonado 2015: 21). The concept of nature as an intelligent organism shifted in the period of the Renaissance, where an organismic metaphor gave way to a mechanistic view of nature, which explained the intelligent order in nature by laws that nature obeyed (see Haila 2000: 7–8). In times before the Newtonian revolution the process of externalisation took two forms – nature was externalised as an object of knowledge and as a resource in the practical sense. On this background rest presuppositions of a unified nature, ordered by identifiable laws, that can be formulated in the language of mathematics (Haila 2000: 11). Externalisation of nature took the modern form with Descartes and the introduction of substance dualism. By distinguishing between *Res Cogitans* and *Res Extensa*, between thinking thing and extended thing (Descartes 2008: 55; Cottingham, Stoothoff, and Murdoch 1984:

2 In this context, aesthetic closures are understood in two senses: as an image of the threat of the collapse of human society, which creates integrity through the desire for unity in action. This requires a specific distribution of the sensible, which allows us to make certain aspects of the current situation invisible.

3 In the scientific community, there are many critics of the argument and concept of the Anthropocene, but in the context of the article we rely on Moore's proposal of the Capitalocene and the related concept of world-ecology, which introduces us to socio-ecological metabolism and directs attention to his work.

4 Delving deeper into the fabric of the ecological argument, the argument of one nature, obscures the multiplicity of its existence, its various materialities, and at the same time assigns it a centre (cf. Simoniti 2022). But insofar as nature is many and intertwined, nature can only exist at its own edges, since it has no central node; nature is rhizomatic.

54), Descartes separated the knowing subject from the object of knowledge, thereby formulating the problem of the existence of the external world in a new manner (Bottici 2007: 64; Bottici 2012: 594), that was named by him as Cartesian dualism (Blom 2019: 21). With Bacon he shared the idea that the objective of science is the domain and control of nature, and scientific thought is the perfect tool to achieve this goal (Valenti Possamai 2013: 839; Descartes, 1637/1998: 35).

In the development of the concept of world-ecology, Moore (2015; 2016) builds on a critique of Cartesian dualism to provide a new understanding of the nature/culture dualism. He introduces the concept of world-ecology: 'a method of bounding and bundling the human/extra human/web of life relation [...] and a framework for theorising manifold and multilayered forms of human experience' (Moore 2015: 36). This should not be conflated with the ecology of the world. This is not the ecology of nature – rivers, meadows and mountains, bugs, and worms – but the ecology of the oikos, the multifaceted relationship of the creation of life, species and environments: humanity in nature, nature in humanity (Moore 2016: 79). Through this lens, attention is now focused on a specific organisation that directs the current becoming of world-ecology, namely capitalism as a form of world ecology (Moore 2016: 79). Capitalism is here understood as a 'historically situated complex of (socio-ecological) metabolism and assemblages' (Harraway in Moore 2016: 81). As much as a system, it is also a process embedded in socio-political relationships through which we, as a society also reproduce it. This is where empire enters as a specific techno political economy and geopolitics of global dominance[5] (Ghosh in Vivieros de Castro 2019: 303), which walks hand in hand with geopolitics of knowledge (Mignolo 2011).[6] To cut through this relationship reproduction cycle we need to develop a new mode of thinking, a new environmental rationality (Leff 2014) capable of generating knowledge that resonates with shifts in sensibility and consciousness.

Sustainment or Where Do We Want to Go?

If calls for sustainability primarily entail abandoning practices that have destructive effects on socio-ecological systems, then what we require is a new enlightenment, a fresh mode of thinking capable of embracing the complexity of the more-than-human realm. Drawing inspiration from the Enlightenment tradition, Tony Fry proposes the concept of Sustainment to navigate this transition from pre-modern to modern thought (Escobar 2022: 170). It is a new era, in which we are able to nurture ways of being-in-the-world, that in turn are able to oppose

5 See also Imperial *Mode of Living* by Brand and Wissen.

6 See e.g. Mignolo 2011.

the ontologies of defuturing (Escobar 2022: 43),[7] i.e. all those practices of being-in-the-world, that take away the possibility of the future. While Escobar critiques the concept for aligning with the civilisational dream of universal reason and imperative order and progress, he also acknowledges its potential to foster a shift from critical to creative thought. The starting point of the proposal is based on the recognition that current sustainability is unsustainable at its core – what we sustain is usually precisely unsustainable (Fry 2003: 44).

The argument for Sustainment starts with the placement of the discourse of sustainability in the field of technology. Here Fry points out two aspects, namely that 'sustainability is deemed as an outcome of the application of technologies created to offset scientifically and technically defined forms of system dysfunction (i.e., technologies with high negative environmental impacts)' and that 'it operates as a metaphysic that installs a techno-functionalist way of viewing the world. This limited discourse of sustainability interpolates subjects and institutions and reduces problems of the unsustainable to a breakdown of biophysical system(s)' (Fry 2003: 42). The two aspects are interrelated and mutually reinforce one another. Without underlying techno-functionalist rationality diverse developments and applications of technology would not be possible. On the other side, constant developments of technology, both as means for more effective use of natural resources and at the same time relative highly precise tools through which we explore micro and macro levels of nature itself – again from the perspective of being used – reinforce the underlying rationality. The role of science is in this regard to provide new knowledge. If natural sciences are somehow implicated, without social sciences and humanities the underlying rationality would collapse. Fry traces this line of thought to Baconian Enlightenment, which constituted nature as technology's other (Fry 2003: 42). Together with Cartesian dualism this forms one of the constituents of European rationality (Altvater 2016: 149).

Through the next centuries the naturalisation of techno-scientific rationality continued. As Fry observes, it intensified during the period of the first two world wars, when technology entered in people's everyday life. In addition to automatisation, one of the key technologies becomes universal time: 'for the first time ever, large numbers of people from varied cultures and geographies had to act under the regulation of a single time. Action and inaction, were thus chronologically measured and the wristwatch arrived as a mass-produced commodity' (Fry 2003: 43). Universal time as technology furthered homogenisation of the world. Although still different temporalities coexist, they are – in relation to dominant

7 Here we are referring to the Slovenian translation of his book *Designs for the Pluriverse: Radical Interdependence, Autonomy and the Making of Worlds*.

capitalist development – rendered relatively invisible, which is especially explicit in the core–periphery relation. The universal time to which we all became subject underpins metaphors of one Earth, the same boat or spaceship, which presupposes a common space of technology by which we control both human and non-human nature. The naturalisation of this perspective obscures inherent power dynamics in the relationship between humanity and nature, that again leads us to the first argument about the human/nature dualism.

To define Sustainment Fry draws on two periods, the Renaissance and the Enlightenment. In the first step he delineates Sustainment from sustainability: if sustainability is tied to a biocentric model of ecological function, 'Sustainment is posed against functionalist and ever more linguistically evacuated uses of the concept of sustainability' (Fry 2003: 44). In a passage where he shows that the concept of economic growth lies at the core of sustainability and that Sustainment is unattainable with existing economic models, he arrives at the conclusion that 'with rigour and creative energy a process of transformation from a quantity to a quality-based economy can be pursued' (Fry 2003: 44). However, since this in itself would not determine the Sustainment, what is needed is a wider cultural shift. For Sustainment to be viable, it needs 'creative endeavour and intellectual weight', leading him to draw parallels with the Renaissance. In his view, the Renaissance 'was an assemblage constituted by, and formative of, a diverse and uncoordinated range of disciplines, scientific and artistic practices, as well as modes of experience. All of this activity centred on, and partly realised, the idea of rebirthing a culture against the backdrop of the dark ages' (Fry 2003: 45). We can note that the two crucial aspects in this passage – that the diverse artistic and scientific practices were uncoordinated and that of the intention of rebirthing the culture – are somehow contradictory. It might be that the creative flowering was uncoordinated, but this does not exclude the fact that artists and scientists were part of the same zeitgeist as the correlating culture. As for the second aspect, the question lies in which aesthetic and scientific regimes of thought were dominant at the time and what they are nowadays. In other words, the task lies in exposing contemporary aesthetic regimes – both in artistic and political senses – and scientific modes of reasoning to a critique that would show intertwinements of both and their role in the reproduction of current conditions.

But where Renaissance might be a retrospective classification, Sustainment aims at the prefiguration of the current moment (Fry 2003: 45). Combined with previous arguments of technoscientific rationality and the need of wider cultural endeavour, this implies shifting current thinking with the intent of reshaping present and future modes of being-in-the-world. By

targeting the transformation of contemporary understandings and unveiling of hidden layers within the sustainability paradigm, Fry relies on the period of the Enlightenment and its appeal to the use of one's own reason. According to Fry, 'the Enlightenment was a prefigurative project driven by a profound dissatisfaction with "the state of the world" and the nature and state of knowledge about it. Its ambition was to establish a naturalised mode of thought and inquiry (reason) against the unreason of the mythic' (Fry 2003: 45–46).

In the last of three articles, – the first was 'The Voice of Sustainment: An Introduction', the second was 'The Dialectic of Sustainment' – he argues that Sustainment denotes a post-Enlightenment intellectual project and agenda that deals with the world created by modernity, the Enlightenment, and their 'dark colonial backside' (Fry 2019: 159). The concept of Sustainment as framed through Fry's design theory is linked to the future, or the creation of conditions for the future to even have a chance to appear. In order for Sustainment to be futural, it offers six imperatives: a confrontation with the end; end time; economy after economy; learning to imagine (again); facing the impossible; recasting 'us' (Fry 2019: 160–162). By situating us within these conditions simultaneously at the end and the beginning, Fry underscores the perpetual 'now' of human existence, where the comprehension of time intertwines with the imperative to shift our thinking, actions, and imaginings[8] for a new world.

The concept of Sustainment invites us to reflect on our socio-ecological and political-economic conditions of living. But as Fry notes, the survival of the idea requires a more considered exercise and a creation of thoughtful and diverse constituency (Fry 2003: 48). In essence, Sustainment offers a new concept and space to ground the diversity of existing critically oriented strains of environmental and political-ecological thought. Searching for synchronicities with Enlightenment it reopens the task of critical reflection for our contemporary mode of thought. Throughout the texts it touches on the development of current technoscientific rationality and points to the roots of it in Enlightenment thought. Fry shows the intertwinements of the imperative of economic growth with the concept of sustainability and underlines the need for a wider cultural project, that would support the process of transformation. What makes it interesting is the occurrence of two other articles with similar aims – Kant's essay 'Answer the Question: What is Enlightenment?' and Foucault's text 'What is Enlightenment?' The first is published as part of a vivid debate at the end of the 18th century among other scholars, scientist and writers, whereas the second poses the question in relation to

8 Although imagination is not mentioned in Kant's and Foucault's essays, it was one of the important themes in Kant's thought.

modernity. However, what is not mentioned is the concept of the subject who is supposed to think, and the form of subjectivity that emerged out of the Enlightenment era.

What is Enlightenment?

There is rich and diverse knowledge about one of the most influential periods of European and, at the same time, world history. Authors usually place the Enlightenment in the 17th and 18th centuries in Europe, from the publication of Descartes' Treatise on Method in 1637 to the death of Immanuel Kant in 1804. Enlightenment authors, as successors to the scientific revolution, were influenced by many scientific discoveries of the time. The new philosophy meant a revolutionary change in the conception of the world and man's place in it (Bottici 2007: 69). At the heart of the ambition of philosophers and scientists was the establishment of a new naturalised way of thinking, a new rationalised worldview grounded in reason, diverging from the irrational and subjective mythical interpretations of reality. As such, it was a prefigurative project driven by a deep dissatisfaction with the 'state of the world' (Fry 2003: 46).

In the centre of the Enlightenment are the ideals of universal human rights, tolerance and hospitality, connected with cosmopolitanism and aspirations to base human activity in knowledge (Lloyd 2013: 4). On a deeper level, the Enlightenment transforms three primary pillars of the Western tradition: the principle that every question can be answered; that all these answers can be known and arrived at by means and techniques that can be learned; that all the answers must match each other, otherwise there will be chaos (Berlin 2012: 35). There is only one way to arrive at this, namely through the correct use of the mind: deductively in the mathematical sciences and inductively in the natural sciences (Berlin 2012: 36). At the same time, the axis of the Enlightenment authors' field of thought built on the findings of the scientific revolution, where the methodical paradigm of Newtonian physics represented an example for the systematisation of knowledge in the field of philosophy. This, unlike the strict systematic deduction typical of Descartes, is based on the path of analysis; it comes from phenomena, which it breaks down through analysis and progresses to the essential principles of their operation[9] (Cassirer 1998: 15–19). This also changes the position of man, who is now placed at the core of the process of cognition.

The essay entitled 'Answering the Question: What is Enlightenment?' is placed in the fruitful period at the end of the 18th century. Immanuel Kant published it in the newspaper *Berlinische*

9 The lines drawn represent only a small part of the overall picture of the thought flow of the period, which is of course broader and more heterogeneous (cf. Cassirer 1998). We chose them because they offer us an insight into the context of that time.

Monatsschrift between the first (1781) and second edition (1787) of *Critique of Pure Reason*. Although it is an intervention in the public space, almost a manifesto, rather than a theoretical work, with its appeal to the use of reason, shown in examples of everyday practices, this positioning connects us with his Copernican turn. In resonance with Copernicus, Kant came to the realisation that the key role in observation is the observer, who is not necessarily passive and static, but can also move himself (Kobe 1994: E9). Since the objects conform to our knowledge, we cannot perceive them as they are in-them-selves but are determined through a priori principles. All experiences and feelings are refracted through reason and thus subject to interpretation, determined through the meaning of ideas internalised through culture. In this respect, we come to the world as we know it through the embodied ideas that we inhabit (Fry 2003: 46). The subject transforms from a passive observer to an active co-creator of the reality he lives. The subject becomes the protagonist that must become enlightened in order to enlighten others. The key, of course, is the question in relation to what he must be enlightened.

The core concept of Kant's essay, *Aufklärung*, is usually translated into English as Enlightenment. In its original meaning, it encompasses the process by which light is scattered, thereby achieving clarity. The question in the title of the essay should therefore be translated as 'What is the process of Enlightenment?' (Pele 2012: 496). But as Schmidt (1996: 29) notes, the metaphor of light can be misleading. Shedding light implicates making visible and exposed, knowing through seeing, whereas Kant's main point is in defence of the freedom of expression. For him, enlightenment demands a world in which it is possible to speak without fear (but see Schmidt 1996: 29). Beside that, *Aufklärung* is more about process than the final stage. In this manner Kant asks himself whether we are now living in an enlightened age and writes that 'no, but in the age of enlightenment' (Kant 1987: 12).[10] Foucault in his text entitled 'What is Enlightenment?',[11] published exactly 200 years after that of Kant, points out precisely this aspect, in which Kant's text also represents a paradigmatic example for philosophical reflection, which is aimed at the definition of one's situatedness in one's own historical era and also a guide to clarifying one's embeddedness in the world of life or to reflect on one's own role in its constitution. Regarding the Sustainment, our focus is precisely on rethinking our relationship to the time (and space) in which we live.

10 Here we are referring to the Slovenian translation of the text.

11 Foucault interepreted Kant's essay in two texts. Here we are refering to the longer and revised one; the shorter, that was published one year before, can be found under the title 'The Art of Telling the Truth', published in Foucault, M. (1988) *Politics, Philosophy, Culture. Interviews and Other Writings 1977–1984*. Translated by Sheridan A and edited by Krtizman, L.D. New York: Routledge, 86–95.

Kant describes the Enlightenment as a moment in history when humanity begins to use its own reason without submission to any authority (Kant 1987: 1). In this respect, the Enlightenment is an exercise in reason, a cultural practice that guarantees humanity's progress towards improvement (Ferrone 2015: 8). The essay begins with an oft-quoted paragraph where he defines the Enlightenment as

> man's way out of his immaturity, which is his own fault. Immaturity is the inability to use one's own reason without the guidance of someone else. The blame for this immaturity is one's own, if the cause of it is not a lack of reason, but rather determination and courage, so that a person would use it without foreign guidance. Sapere aude! Be brave, use your own reason, is the motto of the Enlightenment.
>
> (Kant 1987: 1)

Here, enlightenment is seen as a process, primarily in a negative sense, as a way out of immaturity, which is characterised as the inability to use one's reason. The non-use of reason is rooted either in laziness or cowardice and comfort: 'be it a book that thinks for me, a pastor that acts as my conscience, or a doctor that takes care of my diet, [...] I don't need to think if I can pay' (Kant 1987: 9). Here Foucault gives the first two features. Regarding the awareness of one's own position, in which we have exchanged autonomy for comfort, the Enlightenment is defined as a modification of the relationship that connects will, power and the use of reason (Foucault 1984: 33); the will for transformation, the relationship to authority and the role reason plays in this context. The second characteristic is related to the individual, who must

not delegate the responsibility for this state of the will to others but must use his own reason; the way out of immaturity is only possible by first initiating the change within oneself. However, since immaturity has become naturalised over time, the exit from it can only be gradual. And further, although the revolution might abolish despotism and domination it would not lead to a real revolution of the reasoning itself (Kant 1987: 10). Dare to know or *Sapere aude*, as the motto of this process reads in the original, comes from Horace and in full is 'he who has begun is already halfway there: dare to know' and it means daring to be wise in the sense of achieving balance in the soul (Pele 2012: 495). The second characteristic goes deeper into the aforementioned responsibility. Humans act collectively and personally in the process of enlightenment, and at the same time they are both elements and actors of this process (Foucault 1984: 34). By changing our attitude towards ourselves, we change the attitude towards the world and, in the last instance, the world itself.

In the third characteristic, the notion of humanity, the relationship between obedience and autonomy, and between the public and private use of reason are intertwined. A problem arises with the concept of humanity, as it can be understood in two senses. In the first, the question arises as to whether the whole of humanity is involved in the process of enlightenment. Here we can imagine that the Enlightenment is a historical shift that affects the political and social existence of all people. In the other sense, it can be understood as a change that affects the understanding of what constitutes the humanity of human beings. This raises the question of how we are to know what this change is (Foucault 1984: 3). As far as the question is related to collective and individual change, it is always placed in a socio-political context. The context is defined by the structural conditions within which we humans must play certain roles. The reading here opens an almost mechanistic understanding of society, where each class fulfils a necessary role in the organism of society. Here, Kant introduces a distinction between private and public use of the reason – reason must be free in public use, but subject to obedience in private use, as is in case of military discipline, political or ecclesiastical authority.[12] 'Obey and you can reason as much as you like' (Foucault 1984: 3). It is therefore a kind of adaptation to circumstances, within which reason is subordinated to the goals determined by these circumstances. But if one reasons only for the purpose of using reason, when one therefore reasons as a rational being and as a reasonable humanity, then the use of reason must be free and public. Three levels of the use of reason are outlined, universal,

12 Dolar (1987: 72) here points to a connection with Althusser and the concept of ideological state appartus. He further comments, that private sphere is here the sphere of institutions, where I must obey. But outside, in public, I can think whatever I want.

free, and public, which together form the process of Enlightenment, as well as a new positioning of the use itself, which thereby becomes a characteristic of the relation towards oneself and others.

In a fourth characteristic, the conditions of the use of reason are intertwined in the field of the political. Indeed, if the universal use of reason is a matter of the individual and is guaranteed by the fact that nothing limits this use, then we must ask ourselves what this public use enables and guarantees regarding the conditions that limit this use through structural positions. In Kant's opinion, the best guarantee for obedience is precisely the autonomous use of reason, and the condition for this is that the political principle that regulates the structural conditions is in harmony with universal reason (Foucault 1984: 35). Two questions arise, what is universal reason and how did it become universal, or rather, what form of thought do people produce in relation to the temporal and spatial conditions in which we live.

What makes Kant's essay on the Enlightenment innovative is both the reflection on history and the particular analysis of the specific moment in which he writes and for which he writes. Both, however, are intertwined with his own engagement in relation to knowledge (Foucault 1984: 36). Here we encounter Fry's suggestion that we are always situated in the 'now'. If we take today's 'now' as the starting point of reflection and put it in relation to the 'now' 40 years ago and Kant's 'now', a parallel is revealed to us – despite the changed conditions of living, which have deteriorated as a result of this mental form, we reproduce it as a dominant attitude towards reality. At the same time, this parallel offers us a tool in the form of a type of questioning that problematises man's relationship to reality, the historical way of being, and the constitution of the self as an autonomous subject (Foucault 1984: 38). Thus, the focus shifts to the process of thinking and the subject who thinks; mode of thought can be viewed as becoming of the subject, and becoming of the object that subject addresses.

Our 'now' demands from us that we undertake an equally important process of reflecting on the mode of thought we are embedded in. To make a step further we need to pose a question of how our contemporary mental form established as such. Sohn-Rethel's concept of the real abstraction can show us one possible way for addressing this question. Sohn-Rethel (Sohn-Rethel 2023: 5–26) shows that it is necessary to place mental abstraction as a 'concept formation workshop' in a relationship with commodity abstraction, which is carried out in the process of commodity exchange. To the extent that it is tied to the embodied action itself, it becomes a real abstraction, which is established as thinking, which makes the abstract act of exchanging goods possible in the

first place. But it is not the thought itself, but the form of thought (Sohn-Rethel in Dolar 2023: 29). Sohn-Rethel posits that this form of thought emerged with the advent of coinage, giving rise to Greek philosophy on one hand, and Kantian transcendentalism through the notion of 'categories' on the other (Sohn-Rethel in Dolar 2023: 39). At the centre stands the transcendental subject.[13] As such, through the further development of philosophy, it eventually consolidated and naturalised and became intuitive, presupposed in a specific way. Our most 'natural' experience of a unique and homogeneous reality is the fruit of our intervention; our engagement takes place even before action itself, at the level of the way in which we structure our perception of the world. Žižek explains this action-before-the-action through the figure of consciousness of the 'beautiful soul'. Consider a mother who exhausts herself trying to care for everyone in the family. While her fatigue and sense of injustice are on the level of action directly related to her burdensome responsibilities, on a symbolical level she has structured the reality of family life in a way that, through the feeling of sacrifice for the care of others and exhaustion, exploitation, injustice and neglect, enables her imaginary identification, the consistency of her identity about herself (Žižek 1989: 245). Thus, it is through the form of thought that we establish structures, which enable us the recognition of a given object and at the same time create the conditions for the articulation of ourselves as subjects.

Without the subject as the bearer of a *priori* categories of experience, such as space, time, causality, experience as such cannot exist. If we go one step further, in thinking we finally collide with the limitations that we, as categories of the mind, have set ourselves to be able to think the object in the first place (Kant in Bottici 2007: 71). At the same time, we intervene in reality simply because it is not a complete whole. This is where imagination comes in, which, in its ontological function, enables us to constitute reality as a consistent and homogeneous whole (Žižek 1995: 25). In this regard, the Anthropocene is a period when, as a society, we pushed a specific mental form to its own limit and became aware of this event. When we can no longer encompass objects and phenomena with the established mental form, the faculty of imagination allows us to enter on the one hand the distribution of the sensible, understood here in the sense of susceptibility to affection from phenomena (and thoughts), and expand it, while at the same time modifying ideas on the level of reason and developing a new mental form with which we are able to conceptually embrace this new experience.

13 As Dolar quotes Sohn-Rethla: 'a transcendental subject can be found inside the structure of the commodity form' (Sohn-Rethel in Dolar 2023: 28).

Instead of an Ending: A Beginning

The purpose of the paper is to open a space for reflection on our actions at the end of the *present end* of time. Acting on the background of unreflected concepts of nature and humanity reproduces two starting problems, on the one hand, the narrow separation of humanity from nature, and on the other hand, the very mode of thinking on which the action is based and through which it is reproduced. In the first part of the text, with the concept of world-ecology, we first pointed out the constitutive lack of the Anthropocene argument. This is not to suggest that the proponents of the concept deliberately misled the scientific and wider interested public but shows us the embeddedness of science itself in zeitgeist. World-ecology offers us a perspective where capitalism is a particular form of the relationship between humanity and nature; as a metabolism that has become naturalised. Here, we are not so much interested in the dominant discursive practice of sustainable development with its axis in sustainability, but rather in the placement of the practice in the broader architecture of understanding the time in which we live. The concept of Sustainment offers us a place where we can transpose sustainability in order to develop it into a practice that would eliminate constitutive lack and actually contribute to the sustainability of diverse forms of life.

To expand Fry's concept of Sustainment, we turned to Foucault's reading of Kant's text on the Enlightenment. Here, the Enlightenment is both a period, a process of individual and collective use of reason and creation of the world, as well as a relationship to reality as a world. This perspective reveals a simultaneous inconsistency: while historical periods may exhibit a degree of linearity, the focus on the relationship underscores the persistence of a specific orientation toward reality despite changes in that reality itself. If anything, we should draw from the Enlightenment precisely the ethos of permanent criticism of the historical period in every existing 'now'. Finally, we offer a critique for this call through the concept of real abstraction. In this regard, the process of thinking, as offered by Kant and Foucault, can also be subjected to the critique of being situated in the zeitgeist, where this time we expose to critique the mental form itself. Here, Sohn-Rethel invites us to reflect on the mental form linked to commodity abstraction, the origins of which can be found in the invention of coined money. The key to this insight is that we can use the tools of critical thinking to reflect on exactly this form of thought and see gaps in thinking that allow us to frame reality and subjectivity in a new way. The purpose of the text is not a detailed description of either Enlightenment or Sustainment, but rather an invitation to further rethink the concrete conditions of living, with a focus on

expanding sensibility for existing parallel worlds and the common making of new worlds.

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Chapter 6

The Learning Gardens as an Adaptation of the Heutagogy Orientation

Claudia Marian

Department of Education, Universitatea Tehnica Cluj-Napoca
dia70marian@yahoo.com

Abstract

Pedagogy is a fluid field that must respond to the challenges that have arisen with the new coordinates of learning, the massive use of technology, the expansion over the whole life, the operation with contents that increasingly go beyond the immediate concrete and turn towards the register of the abstract, the partial/total migration of learning in virtual spaces, the heterogenization of learning communities (age, informational background, level of expertise, etc.) brought together by the need to solve increasingly complex problems. Heutagogy, one of the pedagogical paradigms valued for the university environment, has as a distinctive note, the focus on the student's learning autonomy – in terms of the contents, strategies, personal motivations, expected results, even of the place of learning and the group with which the learning is to be realized – and students' investment as an active agent of their own training in the face of the multifaceted demands of the professional environment. By its nature, heutagogy requires the reconfiguration of the physical space according to the new learning contexts. By analogy with healing gardens – real spaces that facilitate the healing of patients in hospitals – the present article proposes the creation of real spaces intended to facilitate learning in the university environment. The study evaluates the characteristics that these new learning spaces must respect, from the perspective of 80 students from various specializations. In the results of the study, in a ranking of the criteria that a learning environment should fulfill for students, the criteria of emotional and physical comfort, which are associated with the need for individual learning or that in small groups, are found in the foreground, the technological equipment, in general, appears in second position, while in the last place, as the demand, is the maintenance of connectivity with the natural environment. This pattern varies slightly depending on the type of specialization followed.

Keywords: learner's self- determination, heutagogy, learning gardens, urban ecology

Introduction

The informational explosion of the last decades and the diversification of potential sources of information, the modification of the psychological profile of the learner, the technology and digitization of education, the gradual transition from a monodisciplinary approach to the pressure of transdisciplinary approaches, the need to expand learning activities throughout life, are some of the dynamics which require updates of pedagogy and nuances of the types of educational interventions. With the increase in the need to use technology, more and more imperatives and scientific results appear that draw attention to the need to focus attention towards natural spaces, including in learning, evidencing that the practice of integrating nature-based learning with technology is effective in children's understanding and development; providing different learning opportunities for children will help them look at themselves from multiple perspectives and also help them be global citizens who gain multiple and complex skills (Gencten et al. 2022). This is the global framework of the present study.

A first reflex of the necessary updates is the diversification of the terminologies used – the global concept of pedagogy is differentiated by introducing the concepts of andragogy and the newest term "heutagogy", each of them reflecting distinct educational realities:

- the term pedagogy is used to denote the "art and science of teaching children"
- the term andragogy is used for "the art and science of teaching adults" (Merriam Webster Dictionary Online 2024), or "the art and science of helping adults learn" (Knowles 1980)
- the term heutagogy is used to describe self-directed learning (Hase and Kenyon 2000) or teaching students how to learn and gain the competencies and skills they need for their selected field.

Based on the principles and practices of andragogy (Hainsworth et al. 2022; Nikolovska 2019), heutagogy also brings a way of learning motivated by the self-determination of the learner. The concept of heutagogy involves student-centered learning and their ability to determine their own learning topics (Nining et al. 2023), to establish working methods and the materials needed (Tong et al. 2022), to choose their learning group and the level they are aiming for, to self-assess their own development, etc. Due to these characteristics, heutagogic learning is outside the constraints of time (Umah et al. 2023) of limiting the number and duration of learning sessions (Subagia et al. 2023) and of the learning space/environment (real or virtual or variable combinations thereof).

However, the achievement of heutagogic learning is conditioned by the existence of already formed skills and abilities, and in turn has the advantage of a very high yield for the formation of new skills and abilities necessary for the multifaceted demands of contemporary professional environments (Blaschke 2012). Among the skills and competencies that heutagogy supports, and builds in equal measure, are – autonomy, independence, self-direction of behavior, self-evaluation, in parallel with interactivity, proactive attitude, but also creativity, responsibility, self-reflection, etc. (Agonács and Matos 2019); whereby learners self-evaluate the problem-solving process and its impact on their beliefs and actions, and when they question and examine their values, they reflect on what is needed during learning and make hypotheses that improve the ability to learn how to learn (double-loop learning), increasing awareness of the diversity of points of view, flexibility of thinking, etc. It is considered for this reason that heutagogic learning is a step higher than pedagogical or andragogical learning, as it is mainly addressed to students though not only to them (Canter 2012).

Despite the individualized approach to decisions, learning, even in a heutagogic regime, cannot be isolated or unfolded outside of social relations (Montiegel 2023) but requires complex social interactions, with peers, but also with specialists from different fields of expertise, with representatives of social environments, including restructuring of teacher–subject interactions, of course in other situations than pedagogical or andragogic ones, and leads to the reconsideration of the role of the social context of learning – social connections being a scaffolding in which knowledge is co-constructed as in Vigotsky's Theory (Shabani et al. 2010).

The theoretical foundations of heutagogic learning are related to the necessity of holistic approaches in learning, by the principles of humanistic learning, social constructivism, and especially by the theory of self-determination promoted by Ryan and Deci (2017). In Self-Determination Theory (SDT), a theory of

human motivation, individuals are viewed as proactive, born with tendencies toward growing, mastering challenges, and integrating new experiences in a volitional manner. These developmental tendencies do not, however, operate in isolation, and require an environment that will support them. In parallel with the conditions set by the development environment, psychological needs for competence, autonomy and relatedness are indispensable conditions for the development of autonomous motivation or autonomous goals endorsement (Guay 2021).

Each of these personal characteristics that support intrinsic motivation and conditions autonomous learning – the feeling of personal competence, autonomy and the ability to socialize – are necessary premises that constitute the objectives of pedagogical and andragogical training in university education.

In another vein, the studies carried out on the effectiveness of university education highlight more and more the importance of the characteristics of the physical learning space, considered to be not only a passive factor but also a significant variable for engagement in learning activities and learning performance. Learning spaces can be defined as spaces created to support, facilitate, stimulate or improve learning and teaching (Unge et al. 2018), their study in this perspective, occurring recently, with the increase of the online learning environment.

In hospital environments, healing gardens, extensions of therapeutic spaces, physical spaces that include elements of nature (Rebecchi et al. 2023) where supportive social interactions are possible, walks with reflections/calming self-reflections were built; these structures have proven their effectiveness by increasing the quality of life, decreasing the recovery time from the disease, increasing the resilience of patients, reducing the stress levels of patients, relatives and medical staff (Nieberler-Walker et al. 2023; Duzenli et al. 2017). They contribute to reducing the level of monotony and thus enable patients to feel better in themselves both psychologically and physiologically (Wang and Tzortzi 2023).

By analogy with the healing gardens, the learning gardens would have the potential to provide those environmental coordinates that facilitate engagement in autonomous learning (Valtonen et al. 2021), contexts for social connectivity, and overcoming communication barriers, an optimal emotional climate for informational co-construction. Among the characteristics that the specialized literature proposes for building an adequate learning environment (Cleveland and Fisher 2014), most important are those that facilitate the physical, emotional and social compliance of those who learn (Obi Nja et al. 2023), and the necessary technological support. These characteristics, together with the specific coordinates of a natural environment promoted by urban ecology, will be analyzed in the following as starting points

in the evaluation of the needs for a supportive university learning environment.

Study Objectives

The most important objectives that the present study proposes are:

- identifying the importance and types of natural environment elements perceived by students as facilitators of self-directed learning necessary in the design of modern, heutagogic learning spaces/ learning gardens
- identifying the importance and types of elements that contribute to emotional and physical comfort, to increasing social connectivity (communication and collaboration) and to the technological support necessary for self-determined learning, which a learning space must contain
- the nuance given by the type of specialization, for the importance attributed to some elements of the learning space/learning garden that facilitate self-determined learning within the dimensions studied (involvement of the natural environment, emotional and physical comfort, social connectivity, technological support)

Of course, the proposed objectives do not exhaust all the characteristics that a learning environment should fulfill; they stop at those that can be found at the interference of heutagogic requests, in accordance with those of the human needs for balance of the self with the natural and virtual environment and with the demands of urban ecology in relation to social functioning.

Research Method

To achieve the objectives, a 7-point Likert questionnaire was used, having four subscales for the dimensions that an educational space must meet: a) the criteria of mental and emotional comfort offered by a learning space (with seven items: creating the feeling of identity and belonging, aesthetic criteria , physical comfort – light, ventilation, heat – to ensure privacy, relaxation, security and tranquility; b) criteria of social functioning (with six items related to the possibility of individualizing work, the possibility of hiring/working in teams – small, medium, and large groups – the possibility of visual contact, the facilitation of social contact with other community representatives outside of the learning environment); c) access to nature (with eight items: easy connection with exterior natural spaces, natural light, green

walls, visual access to other living species – pets, birds, etc., the presence of vegetation, the proximity of water sources, the inclusion of elements of nature, as a general principle); d) access to technology and versatility of the space (with seven items: the possibility of engaging in activities and handling objects, access to projectors, smart boards, libraries and online platforms, to technology in general, and the easy possibility of remodelling the room). The role of the subjects was to mark on the scale for each element of a learning space, a value, according to the worth that they considered each element has for self-directed learning – 1 point being assigned for minimal importance, 7 points for high importance.

The use of Likert scales in carrying out this study is justified, among other reasons, by the nuanced nature of the answers it captures, by the opportunity to introduce various analysis criteria adapted to specific situations, such as the requirements for an optimal learning environment which students of various specializations can request, and last but not least, the specific tools needed for expressing attitudes in the social field of investigation. Of course, these tools are not the only possible ones.

The *target group* was formed by 80 bachelor level students, from the 1st, 2nd and 3rd years of specializations with humanistic (philology, journalism, public lectures, etc.), scientific (mathematics, chemistry, biology, etc.) and engineering profiles from Cluj Napoca Technical University.

Results Obtained

The analysis of the obtained data indicates the following trends:

- the comparative analysis of the average scores recorded for the four analyzed dimensions indicates two categories of valued criteria for a learning space, categories between which there is a significant statistical difference (p=0.014): the prioritization of emotional and psychological comfort, followed by technological equipment that the educational space must satisfy are in the first category, and social criteria and criteria related to the natural environment (in last place, with the lowest values) are in the second category.

The scores obtained by each of these categories are still in the upper average range (with averages between 4.49 and 5.87). The results are included in Figure 6.1.

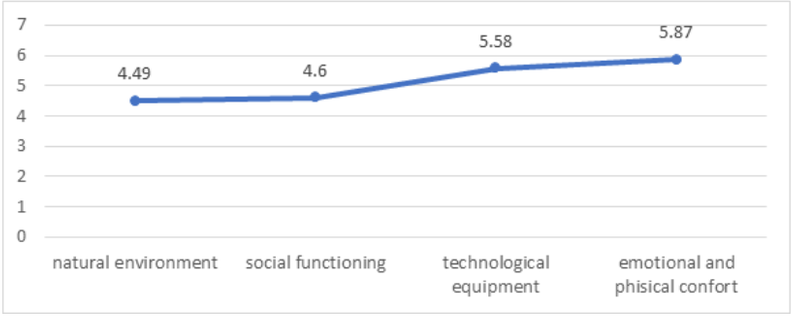

Figure 6.1: Hierarchy of the categories of needs required of the learning space to facilitate self-determined learning

The detailed analysis of the studied dimensions are as follows:

- in the present study, emotional and physical comfort is ensured to the greatest extent by the criteria of physical comfort: silence, warmth, light, ventilation and only then are the needs related to security mentioned (with averages between 6.26 – 6.41 out of 7 possible points, values between which statistically significant differences are not registered p>0.05); the psychological comfort criteria – to ensure feelings of belonging and identity, intimacy, calm/relaxation – recorded values in the medium to high register (average values between 5.3 and 5.9) but statistically significantly lower than those of the physical coordinates (p=0.034). (See Figure 6.2.)

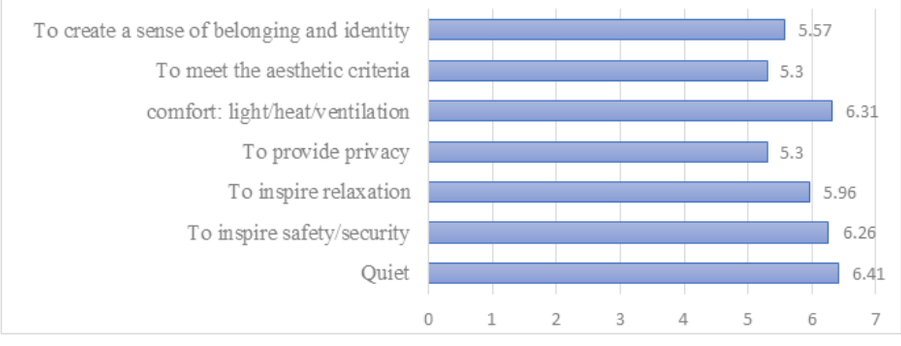

Figure 6.2: Ranking the emotional and physical comfort criteria for a learning space

It is noteworthy that the values obtained for the need for belonging and identity are paradoxically positively correlated with the need for individual work, and are negatively, and proportionally, correlated with the increase in the number of people in the work group; the same negative correlation of the sense of belonging and identity is also registered for the facilitation of visual contact and the offering of opportunities with the members of the local communities that a learning space can have. If for the development of effective self-determined learning the need for connectivity with peers and with the professional environment is postulated, the preference for individualized and small group learning can become a vulnerability for heutagogic learning.

The same trends are preserved in the case of the analysis of the social criteria that a learning environment, in students' consideration, is appropriate to offer: in a ranking of the valorization by the subjects of the learning spaces, the highest values are those given to individual learning and to that carried out in small groups (with averages between 5.5 and 5.21), followed at a significant statistical distance ($p<0.04$) by learning in medium groups. The lowest rates ($m=3.52$) are given to the adaptation of spaces for learning in groups larger than 25 people (see Figure 6.3).

Here the dynamics of the scores given by the students of the different years of study should be noted: the transition from the 1st year to the 2nd year of study is marked by the decrease in the valorization of individual learning spaces and the increase of the average scores given to the spaces that facilitate learning in small and medium groups; the trend is also maintained for the 3rd year with the specification that also towards the 3rd year, the importance of the spaces that offer individualized learning ($m=6.66$) or in small groups ($m=6.11$) is also revalued. A potential explanation for this might be that of the specificity of a final year of the education cycle, characterized by the increase in the level of specialization and the need to complete the bachelor's thesis. The lowest values, however, remain constant for spaces adapted to learning in groups of over 25 people, regardless of the respondent's year of study ($3.04<m<4.36$). A practical applicability arising from these trends is the need to calibrate the dimensions of learning spaces depending on the year of study and the degree of professionalization achieved by the learner.

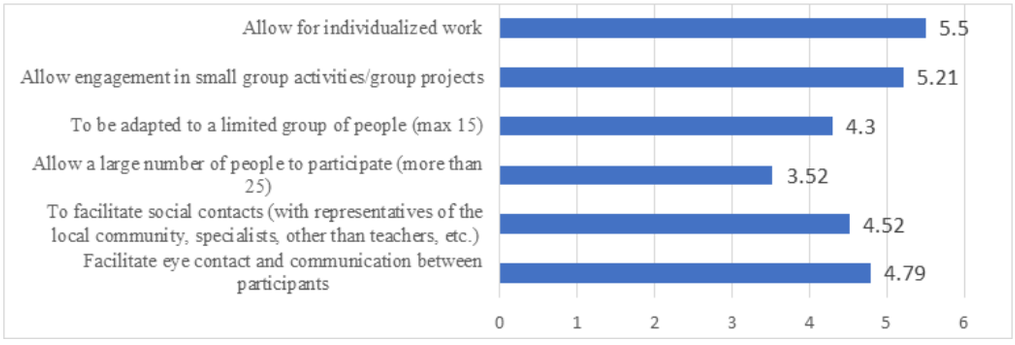

Figure 6.3: Ranking of social functioning criteria for the learning spaces

In parallel with the dynamics mentioned above, the gradual professionalization of students with the increase of years of study induces a gradual increase in the degree of valorization of learning spaces that allow visual contact between those who learn (the gradual transition from averages of m =4.17 to m=6.16) but also the inclusion in the learning process of some representatives of the communities, other than those inside the university (from m=3.95 in the 1st year to m=6.2 in the 3rd year).

An important objective of the present work is to highlight the degree to which, in the perception of the analyzed students, it is important to introduce elements related to nature into the learning space. This position reflects, on the one hand, the pro-ecological attitudes that can be counted on in an environmental education of the population, and on the other hand, the degree of awareness of the protective and balancing role that the elements of nature have on all dimensions of life, including on the quality of learning and the capacity to learn. The results presented in Figure 6.1 indicate that, in the students' perception, the elements of nature have a relatively low importance, with minor tangents with the dynamics of learning (m=4.49) but also in influencing the other dimensions – physical and emotional comfort, social connectivity, etc.

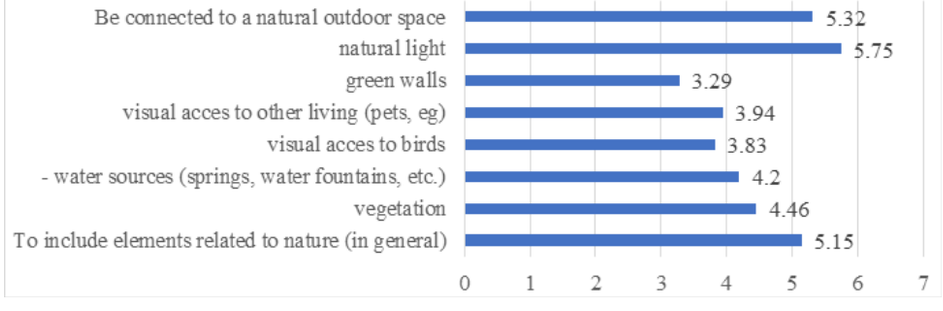

Figure 6.4: Ranking the criteria for access to nature that are considered important for learning

On a more detailed analysis (see Figure 6.4), the degree of valorization of the important environmental factors for the introduction into a learning space is grouped into three large categories depending on the degree of generalization of the formulation of the request: the highest rates are obtained when the criteria are formulated (in a very general manner, close to theoretical educational clichés) as natural light, the inclusion of elements of nature, easy access to an outside space (average values over 5 points out of a maximum of 7). When the formulations have a moderate level of generality (e.g. vegetation, the existence of a water source like a spring) the average ratings decrease by almost one point (in the range m= 4.2 to 4.46), while if the formulation is in concrete terms (green walls, visual access to birds/pets, etc.) the obtained environments decrease by another point (m=3.29 to 3.83). This trend may indicate that the conceptualization of the introduction of elements of nature into the environment of learning and the awareness of its role for personal balance and learning are superficial, stuck in a theoretical operation without practical applicability.

In terms of ecological education, this result is not at all encouraging in terms of availability. Another potential explanation of the obtained results is that our perceptions about the organization of a space, including the learning one, must meet only the criteria with which we are already familiar; in general we are dependent on some functional fixities. Despite the possible explanations, the relationship between fixity and flow, even in the case of changes in the learning environment, give rise to the exit from fixity as a condition of progress (di Masso et al. 2019).

An indispensable element, nowadays, for any learning space is the accessibility of technological supports and the versatility of learning spaces. In the case of our study (see Figure 6.5), the highest ratings are recorded by the elements/principles formulated very generally – access to technology, accessing online platforms, the ease of reconfiguring the space (with averages between 5.87 and 5.71) followed by a significant decrease in quotations for the specific appointment of these opportunities – smart boards, projectors, the possibility of handling instruments, virtual libraries (averages between 5.33 and 5.49). Despite their importance and being widespread, their importance is placed easily behind the criteria of emotional and physical comfort but with a higher importance for learning compared to that of social and environmental factors.

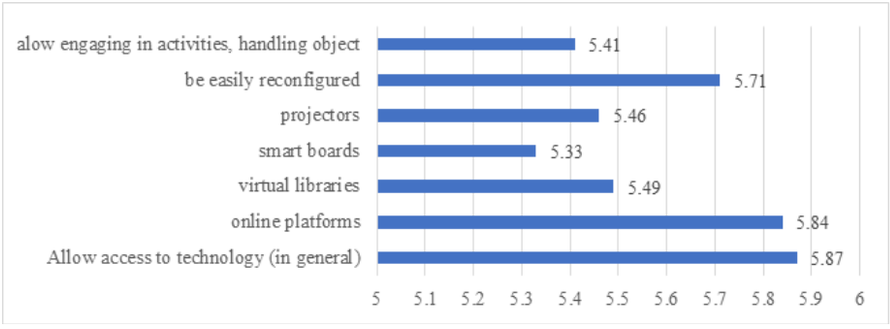

Figure 6.5: Ranking of criteria for access to technology and versatility of space considered important for learning

The data regarding the influence that the type of specialization has on the way in which the needs of a learning space are perceived are contained in Tables 1, 2, 3 and 4.

Specialization	Quiet	Top inspire safety/ security	To inspire relax-ation	To provide privacy	Comfort: light/ heat/ ventila-tion	To meet aesthetic criteria's	To create a sense of belong-ing and identity
Humanistic students	6,43	6,3	5,91	5,38	6,51	5,43	5,53
Sciences students	6,42	6,39	6,22	5,3	6,36	5,39	5,71
Technology students	6	6,67	5,56	4,67	5,11	4,22	5,33

Table 6.1: Influence of the field of study – humanistic, scientific and technical – on the physical and emotional comfort needs of the learning space

Some general trends can be extracted.

- The types of university specialties evaluated induce different needs and varied perceptions on the importance that the different elements of the learning space have on self-directed learning.
- The evaluated emotional and physical comfort needs are in the first place for all three evaluated specializations and their values are relatively homogeneous, without significant statistical differences between the study profiles, with an average value located around 6 (out of 7 points). Among the elements analyzed within this dimension, the need for aesthetic criteria and privacy of students from engineering registered the lowest values (m=4.22 and m=4.67), while the highest values are for the needs of light, heat and ventilation for the humanities students, and those of quiet for those from scientific specializations and humanities profiles (Table 6.1).

	Facilitate eye contact and com-munication between participants	To facili-tate social contacts (with repre-sentatives of the local community, specialists, other than teachers, etc.?	Allow a large number of people to participate (more than 25)	To be adapted to a limited group of people (max. 15)	Allow en-gagement in small group activ-ities/group projects	Allow for individual-ized work
Humanistic students	5.26	5.21	3.94	4.77	5.62	5.45
Sciences students	4.39	3.61	3.61	3.52	4.78	5.43
Technology students	3.3	3.22	3.22	3.78	4.11	5.78

Table 6.2: Communication and team work needs shown by students of different specializations

The communication and connection opportunities offered by the learning spaces (Table 6.2) are slightly more valued by humanities students (general average m=5.04) followed by those from scientific profiles (m=4.22), and less so by those from engineering fields (m=4.01).

	To include ele-ments related to na-ture (in general)	Vegeta-tion	Water sources (springs, water foun-tains)	Visual access to birds	Visual access to other living (pets, e.g.)	Green walls	Natural light	Be con-nected to a nat-ural out-doors
Humanistic students	6.05	4.81	4.23	4.02	4.13	3.38	6.49	5.98
Sciences students	4	4.57	4.17	3.39	3.39	2.91	4.78	5.09
Technology students	4.25	3.89	4	3.89	4.33	3.98	4.27	4.33

Table 6.3: The influence of the field of study – humanities, scientific and technical – on the need for contact with the natural environment for the learning space

The highest degree of dispersion of the values induced by the specializations are recorded for the dimension of inclusion of natural environment elements in the learning space component (Table 6.3). The highest average values are recorded by students of humanities specializations (m=4.89) followed by those of technical specializations (m=4.11 with a statistically significant difference for a threshold of p=0.023) and the lowest values belong, paradoxically, scientific specializations (m=4.87). Even more surprisingly, the presence of green walls, whose importance is increasingly valued in the economy of urban ecology, recorded the lowest values for all the specializations analyzed. The high variability of the specific values recorded, with the impossibility of establishing a unitary pattern, can be interpreted as a lack of understanding of natural mechanisms and awareness of how they are articulated with human existence. From the educational perspective, the situation actually identifies points of vulnerability that need to be compensated.

	Allow access to technology (in general)	Online platforms	Virtual libraries	Smart boards	Projectors	Be easily reconfigured	To create a sense of belonging and identity
Humanistic students	6.3	6.04	5.85	5.49	5.81	5.77	5.49
Sciences students	4.8	5.3	4.43	4.74	4.57	5.61	5.36
Technology students	6.12	6	6.11	5.78	6	5.56	5

Table 6.4: The influence of the field of study – humanities, scientific and technical – on the need for technology

Analysis of the valorization of the technological offers in the learning spaces shows a relative homogeneity between the averages obtained across the different criteria by each+63333389 specialization (averages are included in the range of 4.87 and 5.82). Again the highest values are registered by the humanities students (here an important weight is given by those from the specializations Journalism and Public Relations for whom technology is a work tool) and those with technical training; paradoxically, students from scientific specializations recorded the lowest values (statistically insignificant, p=0.649) for the importance of technology involvement in self-determined learning.

Results related to the attitudes and expressions of needs regarding the optimal characteristics of a learning space that

would satisfy the requirements of a heutagogic learning, however, require some clarifications. As in the case of healing gardens, despite their proven usefulness, they cannot replace treatment or operating rooms, but they can increase their value and accelerate the healing rate. Similarly, learning gardens and the inclusion of connectivity between the learning environment and elements of the natural environment cannot replace the use of laboratories and classrooms. Alternative learning spaces can only facilitate the creation of the preconditions for learning – optimal emotional state, enhancing social connectivity, increasing the perception of the level of competence, of personal commitment to the task, and thereby speeding up the pace of learning.

These valences are not valid for all types of activity, but are addressed only to those in which students are asked to solve tasks of higher difficulty (in which emotional states can block the finding of solutions) or to those activities that claim high and deep social connectivity within some small work groups, with the possibility of switching, when necessary, to individualized work. In other words, these learning spaces are only aimed at excellence. The effects of this social functioning in small and homogeneous groups as competence level, in which the feedback received amplifies the feeling of self-efficacy, leads to motivational re-engagement in difficult tasks and overcoming obstacles. These observations are confirmed by Zeigarnick's studies (Reeve et al. 1986) and Zajong's effect of social facilitation in the case of tasks that are performed at a high level of competence (Belletier et al. 2019).

It would be lacking in ergonomics if easy tasks, which require little personal responsibility (e.g. activities such as attending classes) were to take place in an unconventional environment, calibrated for working in small groups. The risk would be that of producing the phenomenon of habituation in the new environment, which leads to attention difficulties and the reduction of personal commitment in learning by creating a feeling of entertainment, which is demotivating for learning. In this case, the imbalance between the investment to create the space and its efficiency is not justified, and has the side effect of compromising the perception of the role of the natural environment in learning.

Conclusions

Here are some specific conclusions related to the proposed study objectives.

- At a general level, the most important needs expressed by students regarding a learning space are related to emotional and physical comfort (quietness, ventilation, light, safety), followed by

access to technology (especially accessibility of online platforms) and only lastly – with significantly lower scores – those for accessing a natural environment.

- As social facilitation, the learning space should allow individual study or study in small groups.
- The natural environment – the living world in general – does not interfere with the learning activity in the perception of the current generation.
- The types of specialization induce different demands on the learning space; humanities students value to a greater extent the emotional, physical and natural comfort values of a learning environment, while engineering students rather focus on the technical aspects.

As a practical application of these results, learning spaces (especially those for conducting seminars or laboratories) should be designed in such a way as to ensure primarily the basic physical conditions – quiet, warmth, light – characteristics that are associated with feelings of calm, intimacy, belonging and identity, characteristics that can be found in the learning self-determination model as basic criteria for generating intrinsic learning motivation.

The next priority, with almost the same rank, are assignments made to the instrumental needs of learning; for this generation of students, regardless of their type of specialization, the involvement of technology becomes a general principle of learning. On a more detailed analysis, it can be seen that not all technological equipment is equally well valued – those that ensure the source of information (virtual libraries and online platforms) and those that ensure connectivity have priority; less important are those that facilitate teaching – projectors, smart boards, etc. As a practical applicability of these conclusions, the investments in the configurations of the learning spaces should rather be directed towards these tools. The results obtained are congruent with the preferences of those at the beginning and end of the schooling cycle of the license (study year 1 and 3) to study individually or in small groups, and only those in the 2nd year to carry out their learning in small and average-sized groups. The reasons for these options can be related to the lack of familiarity with colleagues and the need to familiarize with them, at the beginning, and to customize the study topics towards the end of the studies. All these trends, together with the valences of social functioning attributed only in a tertiary position to the characteristics of the learning space, crystallize the conclusion of the need to learn "along with others", not necessarily "together with others" at the university level. A possible solution to these requests is the development of

spaces with high versatility, with panels or movable partition walls that could be easily adapted to the concrete situations and needs of those who learn: also, the use of furniture with the possibility of easy reconfiguration.

The starting premise of this study – that the healing valences (scientifically proven) of the gardens included in the hospital space, can be perceived and exploited as facilitative factors for students' heutagogic learning. was not validated by the present study. In the balance between virtual and natural reality, learning is conceptualized closer to virtual reality: even though it is stated that the natural environment is very important in the learning process, this statement seems to be just a general cliché (slogan/ cathphrase) because the respondents do not appreciate the value of the concrete elements of this natural environment (source of peace, calm, balance, etc.) for learning facilitation. What has been assimilated cognitively is not assimilated at the level of attitude. An actionable conclusion emerges from here – educational forces should be used to raise awareness of the need for balance with the environment, as a condition for ensuring an increased yield of learning and personal health.

Once again, efficient learning spaces, connected to the natural environment, are optimal for complex learning tasks, which allow individualization or work in small groups of those with a high and homogeneous level of competence; failure to comply with these conditions is unergonomic and has negative effects on involvement in learning activities.

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Chapter 7

Transhumanism as a Post-cultural and Post-religious Phenomenon

Marius Markuckas

Vilnius University
marius.markuckas@gmail.com

Abstract

This paper aims to reconsider the relevance of theoretical efforts currently prevalent in transhumanism studies to present the phenomenon of transhumanism as a cultural movement. It also seeks to provide an answer to the question of whether transhumanist thinking can be considered as corresponding to a religious one. The paper demonstrates that due to the radically anti-essentialist and constructivist approach to reality and entities constituting it (including the human as an inseparable part of the universe) maintained by adherents of transhumanism, the transhumanist paradigm of thinking is compatible with neither cultural nor religious modes of thought. Respectively, it concludes that transhumanism should be treated as both a post-cultural and post-religious phenomenon.

Keywords: transhumanism, human nature, culture, post-cultural, post-religious

Introduction

The cultural state of the current global world is essentially defined by the increasing technological capabilities of humanity. We are all witnessing the process of rapid technologisation of almost everything – from the most mundane of physical objects such as toothbrushes to the most sophisticated or even spiritual things like intelligence. Not only are we increasingly surrounded by various technologies in our daily lives, adding to a long list of tools that empower us to transform our reality; technologies themselves are also integrating (or, more precisely, are being integrated by our own volition) inside of us, humans. This enables us to change the environment we live in, as well as our very selves – for example, our biological structure or characteristics that are inherent to it.[1] Such all-permeating overspill of technologies allows for the ever-increasing predominance of transhumanist ideas on both academic and societal levels. Transhumanism is widely presented as a cultural movement.[2] Two core tenets of the movement can be discerned: first, that virtually everything in this world can be technologised (which, from the transhumanist perspective, also means it can be 'perfected'); and second, that humans, as masters of the most powerful technologies, are capable of completely controlling nature (including their own) by reducing it to technological problems and the corresponding technological solutions.

The transhumanist project can be reasonably considered the most representative expression of the techno-centric consciousness that has come to define the modern era, the perspective of which has given rise to the belief in the technological omnipotence of the human. As already noted by certain scholars, proponents of transhumanism tend to follow the notion of 'epistemological certainty', which emphasises that all natural limits of human knowledge and agency can be overcome using intellect and technologies (Ross 2020: 17). This approach, in turn, is based on a premise we could identify as the notion of 'technological certainty'. Among adherents of transhumanism, both of these ideas are expressed so intensely that the transhumanist project itself has become a focus for much of the hopes and expectations of traditional religions – or even a specific type of an eschatological system, which is sometimes treated as a distinctive religion, characterised by unconditional faith in the omnipotence of technologies and the technological salvation of humanity.

Notably, even though the perspective of transhumanist thinking emphasises the technological omnipotence of the

1 The idea of humans 'augmenting' their bodies technologically is hardly a novel one. For example, the author of this paper currently has four artificial joints placed inside his body. Many people all over the world wear contact lenses, have dental implants or cardiac pacemakers or use bionic limb prostheses. Artist Neil Harbisson is believed by some to be the world's first cyborg, due to having integrated an antenna on his head, enabling him to 'hear' colours—including those beyond the human visibility spectrum; Harbisson considers this antenna as a part of his body. Finally, even as this paper is being prepared, global media is reporting the news that *Neuralink*, a company headed by the multi-billionaire Elon Musk, has successfully integrated a microchip inside a human brain, claiming that this technology may one day help eliminate complex neurological diseases.

2 The notion that transhumanism is a cultural movement is conveyed implicitly or explicitly in virtually all scholarly works on transhumanism, regardless of whether it is presented and assessed positively or negatively. The only difference is that in one case, transhumanism is presented as a cultural movement that will undoubtedly improve the state of human existence, and in the other, as a cultural movement that may, on the contrary, have unforeseen destructive consequences.

human, there is also the critical counterpart that is developing in parallel to it, and which proclaims that unbounded expansion of technological capabilities will have catastrophic consequences for humanity. Within the discourses of bioethics and transhumanism studies, this direction of thinking is represented by the so-called 'bioconservatives', who stress the necessity of developing modern technologies only as far as to maintain the assurance they will never advance beyond human control and pose no threat to the humanity's existence. This position was especially strengthened by the recently widespread fears that rapid development of artificial intelligence (AI) may ultimately enable it to enslave humanity, or even lead to humanity's extinction. Some proponents of transhumanism, such as Nick Bostrom, are advising thorough risk assessment in the development of cutting-edge technologies, including those based on AI (see Bostrom 2017). The call for caution is also enshrined in one of the provisions of *The Transhumanist Declaration* of the Humanity+ organisation (formerly known as *The World Transhumanist Association*), uniting transhumanists across the world; there it is emphasised, among other things, that 'humanity faces serious risks, especially from the misuse of new technologies', and that 'although all progress is change, not all change is progress' (Humanity+ 2009).

This paper does not seek to reveal and highlight specific possibilities that transhumanism provides to humanity or existential threats that it poses to it in order to establish a position of either positive or negative assessment of transhumanism. It is primarily aimed at discussing the relevance of presenting transhumanism as a cultural movement. Instead of treating it as a cultural phenomenon, the paper provides a different view of transhumanism, revealing how its very idea is incompatible with the basic notion of culture as a process of cultivation, and accordingly explicates the concept of transhumanism as a post-cultural phenomenon. It also questions the validity of the theoretical efforts to represent transhumanism through religious conceptual frameworks.[3]

These efforts to assess transhumanism as a conceptual and practical stand-in for religion, or even a new religion altogether, can be perceived in the works of both enthusiastic proponents of transhumanism and thinkers more moderate in regards to it. For example, even though Max More, one of the founders of contemporary transhumanism, essentially views religions as an obstacle in the path of progress, in his widely acclaimed paper

3 The relation between transhumanist thinking and both cultural and religious thinking was analysed by this paper's author in his doctoral dissertation (see Markuckas, 2022a). Although this paper is based on certain results of the study provided in the dissertation, it nevertheless presents a new conception of transhumanism as a post-cultural and post-religious phenomenon.

'Transhumanism: Towards a Futurist Philosophy' (1990) he nevertheless acknowledges that religions do provide a certain meaning to people's lives, and any form of transhumanism that will one day replace them will inevitably have to contain within itself this very same important existential element. In his own right, Yuval Noah Harari – even though he can hardly be considered a non-critical apologist of transhumanism – has titled one of his books *Homo Deus: A Brief History of Tomorrow*. This author, widely acclaimed in both academic circles and society at large, presents the idea that as scientific and technological knowledge continues to develop, humans may acquire near-divine powers – or, as the title of the book itself implies, become *Homo Deus* (see Harari 2017); in this way, he undoubtedly promotes and supports religious images of scientific and technological progressivism, upon which the transhumanist project is established. Nevertheless, this paper seeks to demonstrate that due to the radically anti-essentialist and constructivist approach to reality and entities constituting it (including the human as an inseparable part of the universe) adherents of transhumanism tend to uphold the transhumanist paradigm of thinking compatible with neither cultural nor religious modes of thought.

Presenting Transhumanism as a Cultural Movement

The intensifying prominence of transhumanistically oriented technological thinking is often understood and presented as a cultural development, essentially embodied in the human efforts to conquer and overcome both the nature that exists outside humans and the one that exists within them as biologically inherited traits – their biological structure. This technological empowerment has so far provided humanity with achievements that helped to manage the unbound natural forces and made our state of existence comprehensively better. Due to our intelligence and technological capabilities embodying it, we are inventing increasingly effective means of protecting ourselves from complex diseases and disabilities, which has provided us not only with a longer lifespan but an improved healthspan as well. We can also take better countermeasures in advance of various destructive natural disasters: technologies allow us to detect early signs of approaching earthquakes, determine the likelihood of tsunamis and floods, etc. However, this empowerment is accompanied by certain negative consequences as well, which attest to the ever more apparent alienation between humans and the rest of nature. It is indicated clearly in academic circles by the rapid growth of the field of Anthropocene studies, which – among other issues – analyse the negative consequences technologically empowered human actions have on the natural environment, already apparent not only on our planet's surface, but in outer space as well. Respectively,

this alienation (especially among the younger generation, which is the most affected by the contemporary trend of technologising everything in sight) appears to be confirmed in the societal milieu by such facts as, for example, more than a fifth of children in the United Kingdom having no idea where milk comes from, or some Lithuanian high-school graduates (as well as public figures seeking to gain popular support by voicing their concerns) insisting that Lithuanian language state exams should no longer require students to write essays on agrarian culture – a subject considered obsolete given the techno-centric zeitgeist of the current world.[4]

Notably, this zeitgeist, which alienates humans from the rest of nature, or narrows their experience of nature to a merely technological perspective, was already predicted by certain thinkers long before the idea of transhumanism became as popular as it is nowadays. In his work The Question Concerning Technology, published in the mid-20th century, prominent German thinker Martin Heidegger emphasised that an instrumental approach to technology is insufficient, since technology is not merely a tool for the human to transform their environment, but is first and foremost a specific way of perceiving the world – and the human as an inseparable part of it (see Heidegger 1977: 3–35). This interlinking of technology with human thinking reasonably allows us to conceive technology not simply as a specific aspect of culture, but as its modus operandi – or as culture itself.

This became especially apparent in the case of the transhumanist project, which established within human collective consciousness the idea that it is possible to enculturate nature through the development of technology-based scientific knowledge and even take complete control over it; the latter would manifest practically as an emancipation of humans from the existential conditions determined by their nature. Essentially, this is how transhumanism was defined by Julian Huxley, founder of the contemporary concept of transhumanism, who conceived the human as a prospective master of the evolutionary process hitherto subservient to nature – or, in Huxley's own words, a 'managing director of the biggest business of all, the business of

4 The conceptual connections between the images of agriculture and the very idea of culture itself are presented in more detail in Section 3, where the relationship between transhumanist and cultural thinking is analysed.

evolution' (Huxley 1959: 13).[5] Huxley can be rightly considered one of the most prominent developers of the idea of cultural evolution as well (see ibid.: 61–92), who sought to reveal the connections between anthropology and biology – or to demonstrate the principal possibility of *humanising* nature by completely mastering it according to human will.

Although the conceptual field of the phenomenon of transhumanism did develop intensely after Huxley's time, becoming supplemented with many new insights regarding the potentialities and goals of the technological transformation of both the human and the rest of nature, the basic Huxleyan idea – which, on the one hand, generally postulated the possibility (and even necessity) of cultural mastery over nature, and, on the other, was the basis for perceiving the transhumanist project as a cultural movement – did not simply evaporate into thin air, but was reused in the theoretical visions and practical activities of the most prominent adherents of transhumanism of our time. Furthermore, one could reasonably claim that this idea of human enhancement in respect to the natural world not only did not lose its relevance, but was itself 'enhanced' – or radicalised. This was done by unravelling its entire potential for transforming reality, which could not be realised in full (primarily at the intellectual level) back in Huxley's day due to the prevalence of a traditional, metaphysically oriented worldview and conception of the human in many people's consciousness.

This is attested to by Huxley's own ideas. However, despite his strong belief in the possibility for the human species to transform itself, Huxley thought that in the perspective of these transformations, humans will not become beings of a different species. Huxley emphasised this clearly by presenting his understanding of transhumanism: '[t]he human species can, if it wishes, transcend itself not just sporadically, an individual here in one way, an individual there in another way, but in its entirety, as humanity. We need a name for this new belief. Perhaps

5 Although the human desire for technological mastery of and various powers over nature can be reasonably considered an ahistorical phenomenon (as also attested to by the epics and myths of various cultures, representing the extensive knowledge of the ancient people—for example, the epic of Gilgamesh, myth of Icarus, etc.) and there were undoubtedly a lot of people who were feeling the same desire back in Huxley's day, it can nevertheless be reasonably claimed that our current cultural milieu is different from those of the past. Considering it is often presented as one of information and expertise, the aforementioned desire is even more strongly grounded and promoted by the increasing scientific and technological possibilities of today, as well as the people's ever stronger trust in scientists and inventors. Without any pretence of an undoubtable scientific truth, it should also be noted that the idea that we are living in a cultural state of exceptional scientific trust is attested to by the fact that the same scholars, who were busy proving that science can turn us into gods (or even merely popularising the techno-scientific worldview), appear now to have gained a sort of a rock star popularity. For example, the author of this paper, who happens to be Lithuanian, has seen a street graffiti drawn under one of the bridges in Vilnius, featuring Harari's name (although the city council appears to have since ensured its removal).

transhumanism will serve: man remaining man, but transcending himself, by realising new possibilities of and for his human nature' (ibid.: 17). Notably, Huxley was not the only one to think in this way – some other prominent thinkers of that time shared such beliefs as well. For instance, the aforementioned Heidegger, who could not be labelled as an adherent of transhumanism, nevertheless did express similar convictions in his treatise *The Overcoming of Metaphysics*. There, Heidegger noted that the growth of scientific and technological knowledge allows for various ways of manipulating the human material – including production of humans themselves (see Heidegger 1973: 106). This allows us to consider Heidegger if not as a transhumanist, then as a predictor of genetic engineering and cloning technologies. He did not think that the mere possibility of manipulating human material based on scientific and technological knowledge necessarily meant that the human ontological form would be radically changed, or that humans would cease to be human and become an entirely (unrecognizably) different species.

In turn, the idea that humans can transform themselves in ways transcending their ontological limits (or overcoming their very humanness itself) has become widespread among current-day transhumanists. This idea is expressed as a fundamental belief that the human can become *posthuman* – a being whose essential qualities and state of existence are practically unknowable and inconceivable to the current human (see More 1990: 6; Bostrom 2003: 5; Ranisch and Sorgner 2014: 8). In this view, the human is treated as a being destined to acquire not only ethical, but also ontological freedom, which in the discourse of transhumanism is conceptualised as a morphological one. This kind of freedom manifests itself as the power for humans to transform themselves ontologically and essentially become whatever they wish (Fuller 2016: 34).[6] This approach can also be described as a perspective of human *deification*, according to which our limited nature will eventually be replaced by unbounded cultural visions aimed at overcoming any human limitations.

Transhumanist Conception of Human Nature and its Relation with Cultural and Religious Thinking

6 In other words, as clearly attested to by the concept of morphological freedom, which proclaims the human right of applying various enhancing practices and modifications (first and foremost bodily) to oneself-(support for this human right is also expressed in *The Transhumanist Declaration*; for a more in-depth description of morphological freedom, see Sandberg, 2013)-the perspective of transhumanist thinking opens up another level of 'freedom' that can be defined as *anthropological*; the earlier (i.e. *humanist*) concept of freedom was oriented towards the human freedom to be any sort of *person* one chooses to be, while this new one (respectively defined as *transhumanist*) emphasises the human freedom to be any sort of species being one wishes.

There is a plethora of academic works inspired by the techno-progressivist spirit, in which transhumanism is presented either as a cultural movement that seeks to bend nature to the will of humans based on scientific and technological knowledge, or as a new type of religion, which – despite reusing certain structural elements of the traditional religions (such as teleology, eschatology, belief in omnipotence and the inevitable end of all human suffering, etc.) – is nevertheless oriented not towards the belief that upon leaving this limited world the human will acquire the experience of endless existence, but instead towards a radical techno-scientific remaking of this world, with the goal of establishing within it the heaven promised by the old religions. In this most fundamental of transhumanist visions, it is precisely the human that is proclaimed to be the new god, *Homo Deus*, emphasising not only their unlimited potential for power, but also the constitutive dependence of reality on the human will exclusively. It is precisely this focus on the limitless creative human will – which primarily manifests itself in the transhumanist project not in regards to the outer nature, but the nature of the human instead, as an aim to transcend its ontological limits and reshape the human into a being of a more perfect kind – that makes it reasonable to treat this project as a process of total *enculturation*.

However, such treatment of the transhumanist project is hardly relevant. A more thorough argument for this statement will be provided shortly in this section; however, we must first note the important circumstance that, in regards to the conception of human nature prevalent in transhumanist thought, one could justifiably claim that proponents of transhumanism maintain a paradoxical, or even self-defeating, position in respect to human nature.[7] On the one hand, they believe that human nature is the main obstacle to the prospering of humanity, the elimination of which would allow for the perfect existential state to be established – that of the divine state of Homo Deus. On the other hand, they deny any notion of a fixed human nature. This is most clearly seen in their radically constructivist view of the human – namely, that humans can be remade in all aspects (physical, mental, emotional, moral, etc.). Thus, the contradictoriness of transhumanist thinking manifests as a tension between the assured belief that there is a human nature standing in the way of human perfection, and the simultaneous conviction that there are no given natural limitations to human development, and humans are therefore able to remake themselves according to their unlimited will – or, as was stated above, 'take the process of evolution into their own hands'.

In terms of the relationship between transhumanism

7 A more detailed analysis of transhumanism as a contradictory project is provided in the doctoral dissertation of the author. This issue is also touched upon in one of his papers (see Markuckas, 2022b).

and culture, this tension within transhumanist thought factually manifests as a radical denial of human nature. Whenever transhumanists consider human nature, they regard it as something that has to be overcome, but not cultivated. It has to be eliminated completely, transforming the human into some other kind of entity or being – something more than human. In this regard, transhumanism is not just an echo of an old idea about perfecting the human, characteristic of both ancient Greek philosophical thinking, which, for instance, emphasised the importance of political life in the pursuit of a more perfect state of human existence (and the realisation of human nature), and mediaeval Christian teachings, which stressed the need for humans to lead their life following Revelation, striving to fully realise their potential for natural perfection in this world and earn the promised blissful afterlife in the kingdom of heaven. Furthermore, transhumanism cannot even be identified with such modern human-remaking ideologies like Nazism or Communism, which are primarily based on the fundamental conviction that through a radical reshaping of the social structure (by exterminating certain individuals and social groups, applying eugenic practices, etc.) it is possible to create perfect human beings or even perfect human races. Nevertheless, even in the face of these disastrous ideologies, the very idea of the humanness was not rejected. For instance, in comparing transhumanism and Marxism (which was the ideological basis of Communist regimes), Fred Baumann argues that the former is the more radical of the two, as it denies the importance of the human being. According to Baumann (2010: 68), transhumanism is 'qualitatively different' from humanist Marxism, since it 'goes beyond' and 'leaves behind' human beings themselves. Baumann's insight reveals that in the case of transhumanism, humanness is not something that can be cultivated, as opposed to all other systems of philosophical and ideological thought based on the humanist paradigm (even though some of them, such as Nazism and Communism, have in practice been inhumane and brought disastrous loss and suffering to humanity).

Considering what was stated before, we can return to the question of the relationship between culture and the transhumanist view of the human and their nature. Admittedly, it is impossible to cover the entire conceptual diversity of the term 'culture' in the limited extent of this paper. Thus, in respect of the primary goal of this paper, the analysis of this diverse term is limited to a brief overview of its etymology, in order to ascertain not what the exact relationship between transhumanism's main aim of radically remaking the human and specific intellectual notions or currents (embodied in certain ideologies that define the current socio-political state, as well as predominant cultural models, worldviews, etc.) is, but how this aim corresponds with the very category of

culture and its fundamental conceptual structure.[8] As such, any attempt to present this category or reveal its conceptual content requires first emphasising the fact that the origins of the word 'culture' lie in the Latin verb colere, inherently invoking images of tillage – or agriculture, as we would call it today. In the primary, and thus the most fundamental of its meanings, culture refers to the process of cultivation. Cultivation of what, though? Surely, in the case of agriculture, we would be talking about the establishment of certain conditions in a specific environment, suitable for fostering desired growth and nurturing a specific nature of the plant.

It is important to emphasise here the fundamental point that culture is impossible without nature – or, in other words, the process of cultivation is only possible when there is something (a particular object) to cultivate. For the sake of clarity, let's use an example of potato growing. What is the farmer's purpose in preparing the soil, fertilising and watering it, picking Colorado beetles off plant leaves, etc.? In the most general sense, the farmer is nurturing the nature of the potato – or making sure it grows into the best potato it possibly can. All these efforts on the farmer's part in no way deny the nature of the potato, nor are they an attempt to transform it into something it is essentially not. On the contrary, one could reasonably claim that the farmer, through all his daily toil, is in effect 'worshipping' the potato's inner nature, seeking to ensure its maximum manifestation.[9] Having this in mind, we could reasonably ask: Can we claim that transhumanism is oriented towards doing the same with the human, considering its ultimate goal is the emergence of an entirely new species of being? Hardly so. Transhumanists do not care about human nature, at least, in the same way the farmer does about the nature of the potato; instead of nurturing human nature, transhumanists deny its importance and seek to remake it into something completely different. This is precisely why transhumanism cannot be considered a cultural phenomenon. It would be accurate, however, to present transhumanism as a post-cultural phenomenon, grounded on an idea opposite to that of culture, which is oriented towards cultivating a particular given nature. It is precisely the relationship between transhumanism and human nature that mainly determines the post-cultural character of this project. As was already demonstrated, the transhumanist provision that the true

8 Despite a plethora of research in the field of transhumanism studies seeking to determine the relationship between transhumanism and certain political, cultural or intellectual currents, the idea behind research presented in this paper can nevertheless be reasonably considered novel or even original, as no comprehensive studies of the relationship between culture *per se* (i.e. culture as a fundamental philosophical category, instead of particular empirical manifestations of it) and the phenomenon of transhumanism have yet been conducted.

9 Notably, the Latin verb *colere* also contains such religious connotations of 'worship': the origins of the English word 'cult', often used to describe various modern religious practices, are directly related to the Latin *colere*.

horizons of perfection lie somewhere beyond humanness is based on the fundamental conceptual assumption that there is no value in cultivating humanity. Lastly, in the context of analysing the category of culture, it must be simultaneously noted that in transforming the human into a new species being or entity (a posthuman), one must follow the conceptual provisions that lie beyond the category of culture – that is, post-cultural thinking.

Notably, this vehement rejection of an immutable and defined human nature prevents the possibility of considering transhumanism not only as a cultural, but also as a religious phenomenon. It is because the transhumanist worldview, with its radically anti-essentialist and constructivist approach to reality, does not allow for the establishment of what in the broadest sense could be called 'obligating bonds'. It should be noted here that the word 'religion' itself, which originates from the Latin verb religare, etymologically refers to a relationship that is obligating or binding. Such connotations of the word 'religion' are easy to explain from a traditionalist worldview, which perceives every entity of reality as having a specific nature that determines its hierarchical place in the so-called Great Chain of Being, and defines its relation to all other entities. The human, specifically, was conceived to be essentially dependent on the omnipotent entity – God. This ontological relation between humans and God is inseparable and fixed, as well as obligating, since the human is perceived as a being that has to accept their own limitedness and submit to the will of God.[10] It is this acknowledgment of such given and incommensurable natures and their differing potentialities that enabled the formation of

10 This religious model is a kind of *idealtypus* of religious thinking, which is reconstructed primarily on the basis of the conceptual content of the so-called 'Abrahamic religions' (i.e. in the interpretations of being embodied in them, the images of and relations between God and human, etc.), and does not truly reflect all the religious diversity and specificity characteristic of humanity, which in turn can be fully revealed only by analysing in detail the relationship of transhumanism with particular religions. Admittedly, this can rightly be seen as a certain shortcoming of this paper, although it comes from the objective circumstance of its limited scope, which simply does not allow us to represent all religions or highlight and nuance the conceptual provisions inherent within different religions, which are undoubtedly important in assessing the relationship between transhumanism and religious thinking.

religious thinking.[11]

Transhumanism, however, is guided by the aforementioned notion of epistemological certainty, which is essentially incompatible with the worldview of traditional religions, as it postulates a techno-scientific omnipotence of the human, while implicitly rejecting the idea of a defined nature as well; it is within human power to change everything, including the things bound by their own nature. Assuming that there is principally nothing the human is incapable of doing, or that there exist no insurmountable natural limits, one inevitably comes to the conclusion that there are no untranscendable ontological differences, nor any bonds between the human and God that may have been established based on these differences. It is exactly because of this reason that Max More, even though he views transhumanism essentially as a replacement for the old religions, nevertheless clearly states that rejection of deities, their worship and belief in them, which was already present in the humanist paradigm of thought and the enshrining of the human and their rationality in the deities' stead, was a major step in the right direction (More 1990: 6). Notably, the prospect of unlimited human potential (which serves as the basis of transhumanism) can only be opened up by rejecting the hierarchically structured ontological model of reality – in other words, by breaking the aforementioned Great Chain of Being, which grounded the traditional, metaphysically oriented thinking, whereafter no objective differences remain between the entities of reality, and no fixed relations – including religious – can be established and maintained. Because of this, the transhumanist idea of *Homo Deus*, which denies human and divine nature alike, can be reasonably treated as essentially not only post-cultural, but post-religious as well. Such treatment is based on the fact that it is precisely in the transhumanist perspective of human deification that enables the most radical manifestation of the belief that true perfection lies beyond any nature, which in turn means that the very deification of the human can only be achieved by stepping beyond any metaphysically based relations that limit the omnipotence of the human – or by shifting from religious to post-religious thinking.

11 As noted by Hava Tirosh-Samuelson, a well-known researcher of transhumanism, even though, for instance, mediaeval philosopher Maimonides did believe that for certain people, such as Moses, it was truly possible to be 'outstanding in regards to their knowledge and understanding of the structure of reality', we nevertheless could not consider Maimonides to be a transhumanist, since, according to Tirosh-Samuelson, 'Maimonides did not think that Moses was God nor did he identify Moses with the Separate Intellects, the philosophic version of the traditional beliefs in angels. Moses was in a class of his own among humans, but he was neither an angel nor God; Moses remains human and was able to translate his profound understanding into laws that guide human action. In other words, even in regards to Moses, Maimonides was clear not to erase the boundaries between the human and the divine, and to acknowledge the humanity of Moses. But it is precisely the boundary between the human and the divine which transhumanism in its hubris seeks to erase as it imagines the fusion between human and intelligent machines' (Tirosh-Samuelson, 2009).

Conclusions

The analysis provided in this paper reveals that the presentation of transhumanism as a cultural movement – an approach currently prevalent in the studies of the phenomenon of transhumanism – is not relevant. The fundamental fact that proves such a statement is that the perspective of transhumanist thinking is based on a radically anti-essentialist and constructivist approach to both reality and the natures of entities constituting it. By proclaiming as their essential goal the ontological transcendence and remaking of the human into an unlimited perfect being (the so-called 'posthuman'), the proponents of transhumanism distance themselves from the fundamental concept of culture as a process of cultivation. Moreover, by assuming that all the natural limits of the human can and should be eliminated, they also reject the very object of cultivation, which, in turn, allows us to state that transhumanism is not a cultural but a post-cultural phenomenon.

Furthermore, such rejection of nature as an immutable and untranscendable given makes it difficult to reasonably treat transhumanist thinking as corresponding to religious thinking as well. Transhumanism does not acknowledge the existence of any stable natures (e.g. those of the human and God in traditional religions), thus opening up the prospect of unbounded human potential. This approach does away with the hierarchically structured ontological model of reality, as it inevitably denies all objective differences between the entities constituting reality. Consequently, it becomes impossible to establish and maintain any immutable and obligating relations between these entities, including those of the religious kind. This is precisely why it can also be stated that transhumanism is not only post-cultural, but also a post-religious phenomenon.

Based on the fundamental insights of the paper, which emphasise the nature-averse (or even nature-hostile) character of the transhumanist project, it is important that further research into the subject considers the ethical, social, and political consequences the continued development of the transhumanist project might have. As humanity witnessed by the relatively recent historical experience of ideologies such as Nazism and Communism, the goal of remaking humans can have disastrous ramifications. In regards to human nature, the transhumanist project proclaims ideas far more radical than the aforementioned ideologies ever did (by emphasising not only the possibility of radically remaking human nature but even of eliminating it completely), which is why it can be reasonably considered to be a comprehensively complex challenge to humanity at large and even humanness itself.

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Chapter 8

Lesbian Imaginaries of Rural Life A Case for Deviant Ecology and Epistemic Tools for Queering the Environment

Lola Mata Harroué

Independent
lola.mata@sciencespo.fr

Abstract

This essay explores the intersection of lesbian imaginaries, rural life, and ecological crisis. Through a critical examination of sapphic rural idylls, the piece navigates the romanticised notions of cottagecore and challenges their potential reinforcement of dominant bourgeois values. Drawing inspiration from the Catalan poet Maria Mercè Marçal's collection, *Terra de Mai*, it delves into the implications of lesbian back-to-the-land utopias as epistemic tools for queering the environment. The focus then moves to the emergence of epistemic tools from lesbian 'back-to-the-land' utopias, including the redefinition of kinship, deconstructing heteronormative spaces, and embracing insubordination for creative ecological design. The discussion concludes by emphasising the importance of these tools in addressing the epistemic, social and environmental crisis left by global warming, advocating for a shift towards multi-purpose ecological technology and a queer-centred approach to ecological paradigms.

Keywords: lesbian, rural, queer, epistemic, environmental

Introduction

Catalan poet Maria Mercè Marçal wrote a collection of poems rooted in a rural and sapphic imaginary. In her collection *Terra de Mai*, allusions to bodily encounters and women's love exist alongside a poetics of earthy elements: a form of lesbian pastoralism.

> [...] may the heart turn all bridle into rain!
> Let the banks explode in lively moisture!
> Let the forests bloom in thousands of mouths! [...]

Terra de Mai can be translated as *Neverland*: a rural space where queer women can escape heteronormative patriarchy. Neverland, however, can also refer to an idyll, a fantasy, a land of never. In those few lines, the poem seems to depict an environment where lesbian encounter is essentially natural, almost organic. This is ironic since most homophobic discourse revolves around the unnaturality of same-gender relationships. Such pastoral imaginaries provide an epistemic creation where queer women's imaginaries can escape the confines of heteronormative patriarchy. From such a text, we begin to wonder whether experiences of lesbians and queer individuals could offer valuable insights and tools for addressing major contemporary issues, specifically the social and environmental crises experienced on a world scale. This would imply that the perspective and practices developed in queer spaces might provide innovative approaches to these pressing problems. We are left wondering whether lesbian, but also queer experience in general, could provide specific tools to epistemically tackle the current ecosocial crisis.

What Epistemic Tools of Environmental Queering Emerge from Lesbian 'Back-to-the-land' Utopias? What Role Can they Play in the Epistemic Crisis Left by Global Ecosocial Disorder?

By ecosocial crisis I refer to environmental degradation, directly impacting public health where vulnerable and marginalised populations are disproportionately affected. Its result is a situation of increased economic inequality with higher 'pressure' and 'externalisation' onto poorer communities that can be more exposed to environmental hazards with fewer adaptation opportunities. Climate change and biodiversity loss also affects agricultural productivity, leading to diverse scenarios of food insecurity. Lastly, as it fosters instability, the looming threat of eco-fascism becomes present as well as increasing losses of cultural practices tied to natural environments thus affecting the social fabric and identity of communities.

As Greta Gaard points out, queer(ing) ecology cannot

be a matter of adding heterosexism and stirring into the soup of different oppressions (Gaard 1997). Queer ecology as a growing discipline is an opportunity to reflect on ecological experiences for dissident and marginalised romantico-sexual orientations. This essay departs from lesbian aspirations and tries to bear in mind the different economic, cultural and social realities that exist inside the queer communities. It focuses on queer epistemic tools to contribute to addressing the environmental crisis, thereby enriching potential solutions. As it departs from lesbian imaginaries, the study relies on Sara Ahmed's definition of queer as 'a disorientation in how things are arranged' (Ahmed 2006: 162). This goes hand in hand with a reflection on object use and technological normativity. With *What's the Use?* (Ahmed 2019), the author questions usefulness in technique and proposes a 'queer use' of objects. Since 'normativity is comfortable for those who can inhabit it' (Ahmed 2014: 147) it is compelling to explore the margins of human technology, and the non-disciplinable uses of human-made technologies.

Sapphic Rural Idylls

Examples and Depiction

An empirical observation reveals that in many different types of art, when lesbian or sapphic love is represented it is, most often, through a pastoral or rural setting. For gay literature and art the pastoral themes that emphasise rural simplicity and an Arcadian golden age have been theorised by, for example, Mortimer-Sandilands and Erickson (2010). In lesbian art, however, the persistent association of lesbian and sapphic love with pastoral settings reveals a rich and underexplored terrain of study. Nevertheless, empirical observations and historical examples, such as the 1970s Womyn's land or 'lesbian liberation land' in southern Oregon, underscore the rooted connection between rurality and lesbianism. These rural ideals are also present in *cottagecore*, an internet phenomenon and aesthetic that celebrates an idealised rural life: 'If you have been lesbian and on the internet around 2019, it has been impossible to miss the "cottagecore" trend.' As McKenzie Schwark (2023) goes on to explain, during the Covid-19 pandemic users of TikTok who were identified by the algorithm as queer were met with a large volume of content associated with the aesthetic and lifestyle trend known as 'cottagecore'. The trend gained popularity during the pandemic as people sought a certain type of rural escapism: 'For months, my "For You" page was awash with queer, feminine people living in perfect little woodland cottages' (Schwark 2023). Therefore, rural motifs in lesbian art and culture not only reflect historical and contemporary desires for liberation and simplicity; they also reflect a longing for queer

individuals, especially sapphic ones, to find solace in escapism and idealised rural lifestyles. The internet has become a fertile ground for this expression.

Lesbian Utopias: Why Do They Appear?

In the Youtube video 'Why is Cottagecore so gay?' by user Rowan Ellis (Ellis 2020), it is argued that cottagecore provides a virtual escape to a place absent of male gaze, homophobia and judgement. It is a place 'that doesn't feel like a banishment but instead a specifically curated paradise'. Lesbian imaginaries can provide for a fictitious reappropriation of the countryside: that is, reclaiming a queer environment against the accusation that homosexuality is 'unnatural'. (Maulpoix 2022). This may stem from lesbians' limited comfort in urban environments due to the lack of dedicated spaces for their experiences compared to gay individuals. This invisibilisation of the lesbian experiences, as well as the violence that a patriarchal heteronormative order exerts on their daily lives in the form of male gaze and homophobia might fuel an attraction towards [so called] 'safe spaces', be it separatist places or simply 'green' freedom havens. The unveiling of the capitalist oppression and inequalities that the pandemic permitted can also be a factor for an escapist trend to emerge. Lesbians suffer from other forms of oppression, economic ones in particular, as we know that lesbian couples tend to be poorer than other types of couples. In fact, research suggests that lesbian couples tend to face greater economic challenges compared to gay and heterosexual couples. This inequality which is referred to as the 'lesbian wage gap' can be attributed to various factors, including gender-based pay disparities, discrimination, and societal norms (Badgett 1995). Ultimately 'it seemed like living through a global pandemic while trapped in a capitalist hellscape had young people, especially young queer people, dreaming of an entirely different kind of life' (Schwark 2023). Hence, artistic imaginings of rural sapphic life might arise from a longing for shelter which is idealised in the form of a countryside existence.

Problematising the 'Cottagecore' Ideal: What Is Behind the 'Specifically Curated Paradise'?

As we saw, the Cottagecore internet aesthetic represents 'queer, feminine people living in perfect little woodland cottages' (Schwark, 2023). This seems like a natural aspiration especially in times where most of the global working class is alienated from nature (Foster 1999). But this romanticised depiction of a pastoral tradition of rural simplicity might reproduce ideals that can be translated into disconnected neo-rurality: a form of inhabiting rural spaces by non-rural individuals, where the emphasis is put on a fictitious 'connection with the land'. This comes at the

expense of truthful connection with other individuals traditionally inhabiting that countryside, a phenomenon depicted by Darren P. Smith and Louise Holt (2005). Neo-ruralism refers to a socio-demographic trend that emerged predominantly in the 1980s. It involves individuals from urban areas opting to relocate to rural settings in pursuit of a lifestyle characterised by a different pace and set of values, which they perceive as challenging to attain in contemporary urban environments. Various factors motivate this shift in lifestyle, including personal preferences, ideological beliefs, health considerations, strategic decisions, or temporary circumstances. Essentially, neo-ruralists are individuals who, despite holding urban values, choose to inhabit farmhouses or secluded areas in rural regions. Not only is that a fertile ground for marginalisation and gentrification processes of rural communities but this neo-rural idealisation of the countryside as a 'safe haven' strikes as a reproduction of the nuclear family ideals and dominant bourgeois values. First of all, this idealisation reinforces traditional gender roles and family structures, marginalising alternative family arrangements and lifestyles. From the cottagecore trend to the 'tradwife' ideals, there might be only one step. Moreover, the nuclear family ideal, characterised by a heterosexual couple and their children living in a single household, is often romanticised in rural settings. Thus, rural areas may be perceived as offering a sense of security in which accumulation and settlement in the form of access to private property can thrive away from the perceived dangers and uncertainties of urban living. Eventually, lesbian households could secure aspirations, and lifestyle preferences associated with participation in capitalist economies: values that seem at the antipodes of the historical meaning of queer. Cottagecore illustrates the challenges of claiming an aesthetics that doesn't consider class struggle or material means to attain equity.

What Epistemic Tools of Ecological Queering Emerge from Lesbian 'Back-to-the-Land' Utopias?

Ecological queering emerging from lesbian rural utopias could reflect a broader commitment to challenging normative frameworks. By 'epistemic tools' I mean unique perspectives, practices, and approaches that challenge conventional understandings of the environment, ecology, and human–nature relationships.

First, we can think of the possibility of making families with non-biological members and making families in the more than human world: in fact, queer politics offer avenues to redefine kinship (Mortimer-Sandilands & Erickson 2010). Making families with non-biological members has important ecosocial consequences because it can mean sharing intimacy and social

welfare against a particular type of capitalist organisation. Atomisation and the forms of social isolation that capitalism favours are deeply rooted in hyper-individualism. Regarding this problem, queer people might be able to show ways of living that are not so tied to institutionalised heterosexual nuclear families and inheritance. Sometimes by choice and sometimes not, 'chosen families' are specifically attached to the queer experience, because they provide a space for support, genuine love and attachment similar to the one that is expected in traditional families. Moreover, the institutional difficulties that exist for queer people to make families in the sense of reproducing, can make them suited to develop relationships with companion species, such as pets and other types of animals and plants. This redefinition of kinship expands notions of care and responsibility beyond human-centric frameworks, encompassing relationships with non-human beings and ecosystems. Therefore, queerness also traces a path towards making families in the more than human world, and points towards avenues to redefine kinship. Both of these things are central when we think of new ecological paradigms.

Secondly lesbian 'back-to-the-land' utopias might give an opportunity to engage with the deconstructing gesture. By engaging in the deconstruction of heteronormative organisations and gender roles, those utopias help point towards how rural landscapes are traditionally associated with heterosexual norms and values. They create alternative spaces where queer identities and experiences are visible and integrated into the fabric of rural organisations. This process challenges assumptions about who belongs in rural spaces, and in virtue of its defiance, queer politics can offer a window of opportunity for a critical project to unfold. As Ahmed says: 'Something becomes queer, odd, noticeable, or curious when it reverses how things exist usually or by challenging how things are expected to be. When something has become usual, the unusual is striking' (Ahmed 20019: 75). According to Ahmed, it is pertinent to recognize that contemporary spatial arrangements are often imbued with heteronormativity, reinforcing conventional norms and expectations regarding gender and sexuality. In What's the Use? she explains that heterosexism influences the ways we build our cities, our institutions and parks: proving that there is a deep link between heterosexism and technology. This thought is also shared by Mortimer-Sandilands and Erickson: heteronormativity has shaped the ways we think about nature, for instance, parks are historically thought as heteronormative spaces (Mortimer-Sandilands, & Erickson 2010: 12). They explain that the 'urban parks movement' was a response to discourses of degeneracy, and 'public green spaces were promoted by a gamut of social reformers intent on improving the health and virtue of, in particular, the urban working class'. Parks were created as an

access to nature for urban populations often with the intention of promoting 'the disciplined cultivation of virtue'. They were places to see and be seen, a site for public spectacle that allowed for the creation of rituals of 'respectable' heterosexual courtship. We can thus posit that queer existence and queer inhabitance of space into the hetero-thought natural designed spaces, is per se a deconstruction of the narrative which provides a critique towards its constructed nature. Therefore, there is potential of 'Challenging hetero-ecologies from the perspective of non-normative sexual and gender positions' (Mortimer-Sandilands & Erickson 2010: 22).

Finally, we can find potential for an ecosocial insubordination in lesbian 'back-to-the-land' utopias. While some green movements might have a tradition of conventional, normative or even conservative policies, there is something revolutionary to be learned from the queer experience. The cottagecore ideal, as exposed earlier, results in an idealisation of neo-rurality and a reproduction of the nuclear family ideals: a reproduction of dominant bourgeois values. This is a disappointing horizon for queer politics which runs the risk of losing its reivindicatory message altogether. This is a criticism that both Queer *Ecologies* (Mortimer-Sandilands & Erickson 2010) and *What's the Use?* (Ahmed 2019) make when they argue that we should reclaim and embrace queer resistance. In other words, queer people, in a context of ecosocial crisis, should probably put less energy into wanting to be accepted. As Mortimer-Sandilands and Erickson say 'the continuing mainstream political process by which gay men and lesbians strive to be "accepted" in consumer society limits the full scope of political potential' (2010: 22). Similarly, Ahmed reminds us that queer is a politically charged word, and that we should make use of this marginal positioning: 'what makes queer a "politically potent term" is how it cleaves to "the childhood scene of shame" [...]. Queer acquires force and vitality precisely because we refuse to use the word to make light of a history' (Ahmed 2019: 198).This powerful historic background of having grown up 'queer' which crystallises under 'the childhood scene of shame' can be a point of departure for political strength and a motor of change. In *Stone Butch Blues*, we can see how the childhood feeling of discomfort that characterises their queerness never leaves the protagonist and forges their political will. This eventually condenses into the book publication that Feinberg names their 'call to action'. There is a matter of survival and creativity in the queer experience in heteronormative environments. As Sarah Ahmed points out, 'The riskier it is to speak out, the more inventive we have to become. [...] Queer use can be a matter of survival, becoming fainter as your best chance of being at all' (2019: 218). That forced-upon creativity that exists in the queer experience is a tool for getting creative with techniques and technology, both of them being crucial to ecological

design. Therefore, instead of trying so hard to fit into a polished green consumer individual we shall have a try at ecosocialising queer politics and queering ecosocialism.

The Significance of Queer Use as an Epistemic Tool Amidst an Environmental Crisis

Queer epistemologies are important because they ask us to re-examine how 'nature is constructed'. As we saw, both heterosexuality and homophobia have shaped the institutions through which we experience nature. This also concerns our modes of residence and inhabiting space. A merit that can be attributed to *Lesbian lands* is the project of establishing a space away from compulsory heterosexuality. Given their nature as rural initiatives, these communities focus on overcoming oppressive gender roles, all the more within rural occupations. According to Ahmed, similar alternative projects, such as lesbian housing squats, go further than offering a shelter. These deviant projects 'link ideals with material realities and utopias' because 'a crucial point for many queer-feminist living projects is finding ways to combine affordable and politically responsible forms of living/housing' (Ahmed 2019: 211). Thus, these spaces represent a form of 'queering use'. By challenging conventional norms and practices associated with habitation, their inhabitants redefine the way in which space is utilised. This process extends beyond physical structures to encompass broader societal attitudes and behaviours towards living environments. Keeping in mind that a new formulation of 'inhabiting' is necessary in times of ecosocial crisis, many things can be learned from solidarities at the margin of blood families and related individuals. Sharing spaces in those types of habitational projects aims at drifting away from oppressive nuclear families and hetero-centered habitational organisation. The housing arrangements and bonds found in Lesbian lands enable resource pooling on a larger economic scale and foster a greater diversity of perspectives and solutions. Shared living spaces and communal living arrangements can help reduce the overall ecological footprint through shared use of resources as well as strengthening social networks, both essential to overcome the challenges presented by an unprecedented shift in environmental patterns. Creating spaces and communities that move beyond patriarchal and heteronormative arrangements could foster more equitable relationships, provide for more comprehensive visions of 'inhabiting', and broadly speaking, encourage a more just society.

Queer use thus becomes a crucial tool in order to face the titanic adaptation challenges that lie ahead. Epistemically, it becomes necessary to explore the margins and the non-disciplinable uses of human-made technologies. The cover image of Sara Ahmed's *What's the Use? On the Uses of Use* (2019) is

an important image for the argument developed in the book: an 'Out-of-use postbox; being used by the birds, the postbox has become a nest' (Ahmed 2019: 34). This image encapsulates the queering of technology; an object takes on a new meaning and function when utilised in new ways for which it was not originally intended. In this case, the nest-postbox highlights a creativity inherent in queer approaches to use. As suggested, queer use also challenges traditional notions of utility and ownership by subverting established purposes and hierarchies. At the same time, as Ahmed points out 'That a postbox can become a nest still tells us something about the postbox. It can provide such a home because of its shape and form; the same shape and form that enables it to function as a postbox enables it to function as a nest (there is a hole to enable entry and empty space to enable a home for those who are small enough to fit)' (Ahmed 2019: 34). So eco-queering technology could not only mean subverting uses, in the form of inversion. It could actually mean finding new uses, and in fact multiplying the potentiality of one object. Such a goal is in line with objectives of sufficiency and durability when designing objects. This brings us to the third reason why queer thought might be essential in thinking of solutions amidst an epistemic and environmental crisis left by global warming.

The necessity for versatile and adaptable technology guides the displacement towards queer use: we need these epistemic tools because we need multi-purpose uses and technology. Drifting away from consumer-centrism towards a production that's interested in material limits, asks of us that we make 'the most of' single pieces of technology. Thereby multiplying our uses and reducing our needs. This also asks of us that we realise that many of our technological desires are not our own. Many of the technological desires that capitalist hegemony produces – if not in fact the great majority – are skillfully manufactured, they are sold to us amidst our consumer alienation. This is specifically important as we navigate queer politics because one of the dangers of identity politics is being told what to buy to cater for our specific identities. Getting away from consumerism also means recentering around durability and giving back a central value to objects in order to counteract planned obsolescence. For most of us, our daily lives reflect this resourceful queer practice. For example, 'using a cup as a paperweight' (Ahmed 2019: 26) shows how we creatively multi-use objects, inspiring us to consider ecological, user-centered technologies. As a result, queer use is an epistemic tool to remind us that we need objects that have an adequate lifetime as well as multiple uses: what could be described as user-centred technology.

Conclusion

By considering lesbian and queer utopias, one can appreciate the importance of their epistemic potential. Such creative potential, conceptualised as queer use, can be applied in technology production that addresses our current ecosocial crisis. Referring back to Sara Ahmed's perspective, and the image of the postbox, queer use signifies the possibility for marginalised beings to inhabit spaces traditionally considered as belonging to others. This is helpful to address anthropocentrism but also to tackle the intersecting oppressive systems attached to capitalist power. 'This image of a postbox is a queer teacher. It teaches us that it is possible for those deemed strangers or foreigners to take up residence in spaces that have been assumed as belonging to others, as being for others to use' (Ahmed 2019: 228). Queer(ing) ecology, when it means r*eflecting on specific ecological contexts for dissident or marginalised romantico-sexual orientations* can have very fruitful implications for ecological technology. However, sapphic rural idylls, as long as they remain rooted to romanticised notions of cottagecore reinforce dominant bourgeois values. Thus, poetic depictions such as *Terra de Mai*, can be useful as long as they are consciously thought as aestheticised *Neverlands*. Lesbian as well as queer aspirations of connection with the environment, need to bear in mind the different economic, cultural and social realities in which they are inserted. For political visions of lesbian living to stay grounded in practical and real-life issues, they should focus on areas where they can make a meaningful impact, such as redefining kinship, deconstructing heteronormative spaces, and embracing insubordination for innovative ecological design. This appears as the only way to embrace the possibilities born out of its imaginaries and to effectively get beyond the current epistemic crisis.

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Chapter 9

Critical Art Practices An Account of Two Case Studies through the Lens of Deleuzian Affective Ethics Lola

Francesca Perotto

Northwestern Italian Philosophy Convention (FINO)
francesca.perotto@unito.it

Abstract

In recent years, the Deleuzo-Guattarian account of the affects, mainly inspired by Spinoza and Nietzsche, has been widely used to promote a new and fruitful approach to the political and the ethical – to the point that the expression *affective turn* has been created. In their philosophy, however, the function of the affects is not limited to bringing together aesthetics and ethics. With the percepts, the affects are also the specific material of artistic creation. This gives artistic practices a very peculiar, yet mysterious ethical and political relevance. I will try to address some aspects of this functioning by considering two contemporary works of art that I regard as exemplary of both the perspective that Deleuze and Guattari criticise and the one which they propose. The first is *Lights in the City* (1999) by Chilean artist Alfredo Jaar, which denounces the living conditions of the homeless people in Montreal (Canada); the second is *The Handbook of the Spontaneous Other* (2020) by Greek-Armenian artist Aikaterini Gegisian, a deconstructive photo-collage of the Western hegemonic concept of desire. To show some features of the affective politics of art practices, I will compare the two artworks under five aspects: their use of negation and affirmation, the ontology they rely upon, their relationship with actuality and information, their use of the possible and the virtual, and indeed the affective effects they produce.

Keywords: political art, affects, Deleuze and Guattari, Aikaterini Gegisian, Alfredo Jaar

One of the best-known functions of Deleuze and Guattari's concept of affect is to establish a direct link between the aesthetic and the ethical, short-circuiting the judicial grid of morality.[1] Indeed, the concept allows for the elaboration of an imminent evaluative system that, while enabling discernment between modes of existence, is not based on the violent authority of a transcendence and does not reiterate its ossifications (see Deleuze 1994: 126–135). However, weaving ethics and aesthetics together is not the only function of the affects. With the percepts, they also constitute the specific material of art, whose proper activity is that of preserving them by composing them into so-called 'blocs of sensation' (Deleuze & Guattari 1991: 164).

If the affects both make it possible to overthrow the doctrine of moral judgement and are the specific matter of artistic creation, this may confer a peculiar ethical-political value to art. And indeed, the question of the relationship between art, ethics and politics emerges on several occasions in the work of Deleuze and Guattari. For instance, in the 1975 book dedicated to Kafka, in Deleuze's lecture at the Paris Film School in 1987, 'What is the Creative Act?' or in his 1993 text 'Bartleby; or, The Formula'. But the topic is far from being completely resolved and pacified and the question of Eric Alliez, 'Is there a significant relation between aesthetics and politics to be studied today?' (Alliez 2010: 86) continues to be relevant.

To address this, it is important to clarify that, from Deleuze and Guattari's perspective, if artistic practices can have an ethical-political meaning, this is not given to them by definition. Since theirs is a univocal, anti-essentialist ontology, what determines a typology of all existents is their behaviour – not the other way around. To call something art does not imply, by the mere fact of recognising and defining it as such, that it will succeed in behaving in a certain way: it is the opposite. This is why they insist on the fallacy of interpretation, arguing that one should not look for a supposedly necessary meaning of an artwork but rather ask whether and how it functions ('We believe only in (...) *experimentation* that is without interpretation or significance and rests only on tests of experience' (Deleuze & Guattari 1975: 7)). In this perspective, the political is not the exclusive prerogative of a certain type of practice, but a feature of all of them that depends on the effects of their functioning. It is in this sense that Deleuze claims: 'There is no psychology, but rather a politics of the self. There is no metaphysics, but rather a politics of being. No science, but rather a politics of matter' (Deleuze 1988: 717). Everything has to be evaluated through the effects it produces and no definition can guarantee a priori a certain ethical-political behaviour.

But if a work of art should be pragmatically evaluated like

1 I am grateful to Prof. Daniela Angelucci and Prof. Paolo Vignola for their valuable advice.

everything else, this does not explain how the ones *that function* acquire their specific value. To dissolve the paradox according to which 'Every act of resistance is not a work of art, even though, in a certain way, it is. Every work of art is not an act of resistance, and yet, in a certain way, it is' (Deleuze 1987: 323), I will then need to linger some more on this shift from the logic of definition to functionalism. While it is easy to understand, negatively, why art does not have an ethical-political value by essence, its positive political acting out, as Deleuze himself suggests, is 'mysterious' (ibid.). Indeed, if it is impossible to define a *priori* what any kind of practice is, caution in presenting a systematic analysis of artistic functioning is needed: 'Abstractions explain nothing, they themselves have to be explained' (Deleuze 1990: 145).

As I have recalled, in *What is Philosophy*? Deleuze and Guattari claim that an art practice is that which preserves the affects it composes (Deleuze & Guattari 1991), while in the sporadic texts dedicated to it, the political functioning of art is linked to the relationship it has with 'becoming-minor' (Deleuze & Guattari 1975: 27), with experimentation ('substitute forgetting for anamnesis, experimentation for interpretation' (Deleuze & Guattari 1980: 151)) and with 'resistance' (Deleuze 1987). To reveal some of the positive political mechanisms of art without falling into generalisations, I will now explore the relationship between the conservation of the affects and these concepts through the help of two contemporary works of art taken as case studies.

Lights in The City by Alfredo Jaar

The first work I consider is *Lights in the City* (1999) by Alfredo Jaar. The story of the work is the following: Alfredo Jaar (Santiago del Chile 1956) was invited by the city of Montreal (Canada) to produce a public intervention in the dome of the *Marché Bonsecours*, the former seat of the Canadian parliament, from which it was moved due to frequent fires – the dome burnt down five times while it housed the parliament. As Jaar reported on different occasions, after visiting the city several times, analysing its urban context and checking the visibility of the dome to decide what to realise, he noticed something hidden in the architectural and social fabric of the city: the existence of several shelters for homeless people. Upon inquiring, he discovered that, despite the city's wealth, the homeless community was vast but invisible. After talking to some of the frequenters of these shelters, he thus decided to dedicate his work to them, restoring their visibility but in a different way from a photographic intervention – typical of his practice but that would have exposed them directly – to protect and respect their privacy. He submitted a project to the homeless people attending the shelters and once approved, realised it.

The question of the representation and documentation of socio-political problems is a pivotal theme in Jaar's work. In a 2005 interview with Patricia Phillips, he stated: 'There is no way to translate what I see into a work of art. It is absolutely impossible. The challenge is enormous and forces me to invent new strategies of representation. That is why I describe my work as a series of *exercises in representation*'.[2] Indeed, the importance of Jaar's practice in rethinking the theme of representability in the history of art is also at the centre of the aesthetological debate of the late 1990s and early 2000s, as testified by the texts dedicated to him by Gianni Vattimo (2005), Jacques Rancière (2007) and Georges Didi-Huberman (2007).

In the case of *Lights in the City*, Jaar decided to address the representation of the homeless by installing several red lights inside the dome of the *Marché Bonsecours*, which could be activated by the people of this community through switches in nearby shelters. Each time a homeless person entered one of the shelters, he/she could decide whether to manifest his/her presence to the city, denouncing his/her condition while maintaining anonymity, in a kind of effective but not sensationalist documentation. In this narrative, the red lights inside the dome represented not only a call for help from a social minority but also a symbol of the fire that destroyed the dome several times in the course of its history, just as the social injustice of the homeless people's condition was putting the life of the city's community at risk.

Figure 9.1: Alfredo Jaar, Lights in the City, 1999. Credits: https://alfredojaar.net

2 Italics by the author.

In the words of Jaar,

> First, a 'photograph' is taken every time a human being asks for help (a light flashes as if a photograph is being taken). This 'photograph' respects the privacy and dignity of the 'homeless' person (there is no 'material image') while at the same time sends a sign (a red light) to society about his or her condition, a condition that is clearly unacceptable within the context of one of the richest cities in North America. Second, the red light also can be read as a threat of fire, like all the successive fires that destroyed the Cupola of the Marché Bonsecours more than once during the course of its history. This sign of 'fire', which has meant tragedy for the Cupola, is now a sign of another tragedy, homelessness. And this time, tragedy (fire) is threatening not the Cupola, but society itself.
>
> (Jaar 2000)

Once completed, *Lights in the City* got significant media coverage and several local newspapers interviewed members of the homeless community, suspending its obscenity. Therefore, twelve other shelters in the city asked to participate in the project, demanding a connection to the dome lights, but after a few months, the city mayor decided to stop the installation.

Figure 9.2: Alfredo Jaar, Lights in the City, 1999. Credits: https://alfredojaar.net/

The Handbook of the Spontaneous Other by Aikaterini Gegisian

The second work I consider is *The Handbook of the Spontaneous Other* (2020) by the Greek-Armenian artist Aikaterini Gegisian (Thessaloniki 1976). Gegisian is a lesser known, as well as younger, artist than Jaar but an established one: at the 56th Venice Biennale, her work *A Small Guide to the Invisible Seas*, presented in the Armenian pavilion, won the *Golden Lion*. Like that previous work, *The Handbook of the Spontaneous Other* is an art book of photo collages. Gegisian's procedure for these types of artworks is as follows: she collects historical images belonging to the pop culture of a certain tradition and processes them through collages that introduce a variation to what the images represent in their original context, partially re-semantising them. As Gegisian declared: 'I go back because I want to reread these image histories and make visible different sets of relations. It's important to continuously create new sets of relations and dialogues' (2023).

In the case of *The Handbook of the Spontaneous Other*, the materials for the collages were collected by Gegisian in New York flea markets from 2014 and belong to pop lifestyle, nature, and pornography magazines from the 1960s and 1970s. The source images of the work are therefore heterogeneous but united by the fact that they were produced by the hegemonic, imperial, and patriarchal gaze that characterised the US cultural identity of those years. In different ways, those images thus normalised the bodies, aesthetics, and desires of Western culture.

It was a magazine, in particular, that inspired Gegisian to produce *The Handbook of the Spontaneous Other*: a sort of self-help manual on how to become a gigolo. Handbooks of self-help are indeed widespread in US culture and, according to Gegisian, are emblematic of the pervasiveness of the neoliberal imperative of production and improvement: 'self-help guides are very prominent in American society, and I wanted to make a handbook thinking about how the body can find pleasure, but without a set of instructions, placing the body in a position of resistance against capitalism' (Goukassian 2020).

Figure 9.3: Aikaterini Gegisian, The Handbook of the Spontaneous Other, 2020. Credits: https://mackbooks.co.uk/products/handbook-of-the-spontaneous-other-aikaterini-gegisian

The Handbook of the Spontaneous Other is thus an atypical handbook, an attempt to deconstruct the meaning conveyed by the source images of the collages, to conceive new ways of desiring and new imaginaries, putting them into variation. The narrative of the work is based on a division into colours that marks nine sui generis chapters. The first, white, presents only collages with two photographs and includes the most normative images. The one that opens the book, for example, shows a kind of petrified model of romantic, heterosexual love that establishes the canon of otherness to be desired. The following chapters constitute variations on the theme, with more images connected in new ways and according to encounters between bodies that the petrified model would not allow. To use Gegisian's words again,

> In my collage practice there is an element of fragmentation through the 'inappropriate' collision of diverse images and aesthetic languages, a practice of disruption (...). It is also a practice of deconstruction, deconstructing the many structures of the image (...) in order to reveal how knowledge is produced, how visual languages function. At the same time, because of my interest in narrative structures, I often focus on creating new image worlds that make visible new forms of imagination. On a deeper level, such a strategy goes beyond a critique of dominant ideologies. The production of new imaginations is also a practice of – to use a fashionable word – decolonizing visual knowledge structures.
>
> (Gegisian 2021)

Figure 9.4: Aikaterini Gegisian, The Handbook of the Spontaneous Other, 2020. Credits: https://mackbooks.co.uk/products/handbook-of-the-spontaneous-other-aikaterini-gegisian

After the 59 collages, the last pages of the art book contain a poetic text elaborating on the idea of the *spontaneous other*, an everchanging figure of alterity modelling desire that always exceeds the hegemonic ways in which it settles.

Different Postures

I find these two artworks and their corresponding conception of artistic practice particularly suitable to show some of the features of the Deleuzo-Guattarian conception of art and its relationship to ethics and politics. The first, *Lights in the City* by Alfredo Jaar, presents indeed many of the mechanisms that Deleuze and Guattari criticise (or at least find ineffective). The second, *The Handbook of the Spontaneous Other* by Aikaterini Gegisian, puts into practice the conception of art as a composite of percepts and affects that functions as an act of resistance and experimentation. After all, it is Gegisian herself who recalls, in a lecture at Spike Island in Bristol, the importance of Deleuzian philosophy for her work.

However, it should be kept in mind that the two artworks chosen are very different in their forms and materials, the processes of production they imply, the type of audience they refer to and the historical moment in which they are conceived. In the case of Jaar, for example, his artistic intervention is public and refers to a wider social context than the one of Gegisian, produced in the more institutional setting of the galleries and art exhibitions. Furthermore, while Gegisian is interested in producing a work that has a certain sensual and aesthetic characterisation, it seems

that, for Jaar, the participatory performativity of the intervention overshadows the question of form. This has to do with the tradition they engage with (see: Bishop 2012). Nonetheless, there are some interesting things the two artists share that I find particularly useful for my aim. First, both artists recognise an ethical-political value to their work. Secondly, both their practices are in dialogue with the photographic medium and the theme of representation. In this respect, while Jaar decided to renounce photography but remained in the framework of representation, Gegisian did the opposite: she adopted it to overcome it. And the question of the relationship between art and representation, as I will show, is pivotal in understanding the Deleuzian perspective. Furthermore, their different dates can show some important changes in the approach of contemporary art practices to the political, as noted for example by Simon O'Sullivan:

> Whereas the representation of modern forms in the 1980s often operated as an ironic critique of the tenets of modernism, what we have with some of these other practices is a repetition of the modern. A repetition that repeats the energy, the force, of the latter. We might say then that rather than a critique of originality and authenticity, these practices repeat and celebrate the modern impulse, which we might characterise generally as the desire for, and the production of, the new (these practices cannot be understood as parodies or pastiches in this sense).
>
> (Zepke & O'Sullivan 2010: 193)

I therefore compare the two artworks concerning five points, delving into their functioning, and showing, by friction, some key aspects of the political operativity of artistic creation as theorised by Deleuze and Guattari. Note, eventually, that the behaviours I isolate are not, once again, essentially linked to a certain type of practice, nor are they exclusive: the same work and the same artist can act out different and contradictory behaviours, even simultaneously. In this sense, the interest in adopting a Deleuzo-Guattarian perspective to read contemporary artworks lies in capturing the different forces that make them up – carrying out their genealogy. Rather than providing a definite judgment on the works, I try to detect their dominant postures to provide concrete examples of the Deleuzian theorisations.

Negation and Affirmation

One of the major differences between *Lights in the City* and *The Handbook of the Spontaneous Other* lies in the posture the artist takes in addressing the socio-political problem to which the work is related. When asked to intervene in Montreal, Jaar explored

the city and got the idea of what to do when he encountered something to deny: the unjust condition of the homeless community. Negation is indeed the driving force behind his work, its inaugural moment, as his interest is denouncing a problem, more than playing with a different logic than the one producing it (for example, engaging in proposing new ways of rethinking the relationships between the various social actors in Montreal). That is perceived as necessarily secondary and consequential – in Jaar's strategy, the main task of a political artwork is representing and negating (in the sense of saying no to) an issue or an injustice. After all, as I have recalled, Jaar defines his practice as an 'exercise of representation'. This is why his attitude can be said to be critical, and his posture is primarily one of negation.

Gegisian's posture, on the other hand, is completely different, so much so that one could call it post-critical[3] Although there is an explicit political component in her work, it is not linked to the denial of an injustice and its exposure, except secondarily. Gegisian primarily intends to affirm the possibility of another narration, to create something different. The focal point of *The Handbook of the Spontaneous Other* is not the hegemonic, imperial, and patriarchal gaze of American culture in the second half of the twentieth century (the polemical target – which is not even made explicit, if not in the interviews), but the rethinking of that legacy in ways that escape its normativity.

This makes her work resonate with the Deleuzo-Guattarian perspective. Indeed, their affective politics and ethics are linked to the primacy of creation and affirmation. Negation is of course not eliminated, but it is put at the service of something affirmative and is not conceived as the main driving force of a practice. It is in this spirit that, in a conference devoted to Deleuzian politics, Rosi Braidotti states:

> It's easy enough to make a list of all the negatives and feel that that is enough to fulfil the critical function. (...) We need to say 'no' to the horrors of the time, but that function is not locating negativity at the core of the exercise: it is just an analytic function that leads on to the real job, which is identifying the areas out of which we can generate vital forces to create possible futures.
>
> (2019: 464)

Rather than dealing with representing and negating an ethical-political issue, Gegisian's posture has to do with the creation, through affirmation, of a 'line of flight' that escapes the

3 It is important to note, however, that the affirmative posture is, according to Deleuze, the real critique. If I am using the expression 'post-critical', then, it is to distance it from the widespread conception of critique of the twentieth century, based on negation.

binary logic of identity and contradiction, typical of the Marxist approach of Jaar (see: Raunig 2010: 43–62). Indeed, as Deleuze claimed in an interview with Toni Negri: 'First, we think any society is defined not so much by its contradictions as by its lines of flight. It flies all over the place, and it is interesting to try and follow the lines of flight taking shape (...)' (Ibid.: 52) and I believe that with the collages of *The Handbook of the Spontaneous Other* this is exactly what Gegisian tried to do.

Realism and Constructivism

The difference between the negative posture and the affirmative one does not lie only in the importance that is attached to the ethical-political issue addressed. It implies a much wider divergence in the conception of the real. In the case of Jaar, the negation operated in *Lights in the City* is made possible by its implicit ontological realism. Only if the real is conceived as something already given, objective, can the artist's task be that of judging it. For Jaar to place himself as a transcendent observer, criticising what is given, the real must be previously organised into an epistemological and ontological dualism, distinguishing between judging subjects and judged objects (what is objectively given). These aspects distinctly emerge from the preparatory work accompanying *Lights in the City.* Jaar acted as an external spectator to the city of Montreal and, once he had its various aspects displayed, proceeded to criticise them. In the words of the artist: 'My modus operandi has always been the same: I will not act in the world before understanding the world' (2022). But from the Deleuzo-Guattarian perspective, it is precisely this reifying realism, rather than the use of negation, that is the problem of such a critical posture. As Rocco Ronchi has noted: 'The fallacy does not consist in judging the world positively or negatively (...). The fallacy consists in making the world an object of judgement and philosophy a tribunal of critical reason' (2020: 97).[4]

Gegisian's posture, on the other hand, does not need to reify the real to affirm some lines of flight. This is because she conceives it as a process of continuous creation, within which she inserts her practice. Her ontology of reference is not realist, but constructivist. In putting the starting images of the collages into variation, Gegisian is contributing to creating a different reality without having to pass by its negation. She does not objectify and contradict it: her practice is one with its means of production.

This also implies a radical change in the position of the artist, who no longer conceives him/herself as transcendent, as in Jaar's case, but rather as one among the different forces immanent to the field of creation. In this sense, as Blake Andrews (2020) has noted, in *The Handbook of the Spontaneous Other* 'Authorship

4 English translation by the author.

gives way to interaction, limits assume a primary role and raw materials converge in unexpected ways to create new entities'. While Jaar's work is highly personal, there is something impersonal at play in Gegisian's.

Informing and Resisting

This brings us to one of the crucial points of Deleuze and Guattari's conception of the relationship between art and politics, thematised in the aforementioned 1987 lecture 'What is the Creative Act?' That is to say, the relationship between information and resistance.

Lights in the City is first and foremost a work of information. After having analysed the context in which his practice had to operate and having negatively judged the presence of a strong homeless community, Jaar decided to intervene by making it visible, by representing it. In other words, by informing people of its existence.

Of course, more than with information, *Lights in the City* has to do with counter-information, integrating or denying the dominant narrative which excluded the homeless from the scene. But Deleuze was quite explicit about this:

> We must realize that counter-information was never enough to do anything. No counter-information ever bothered Hitler. Except in one case. What case? This is what's important. Counter-information only becomes really effective when it is – and it is by nature – or becomes an act of resistance. An act of resistance is not information or counter-information. Counter-information is only effective when it becomes an act of resistance.
>
> (Deleuze 1987: 323)

And it is Gegisian's work that, unlike Jaar's, can become an act of resistance. This is because, through its collages, *The Handbook of the Spontaneous Other* can preserve the affects that run through those images, creating a core of inactuality that resists the spirit of the times ('Reconnecting a whole series of processes and machines in a new, different way, in such a way as to prevent them from functioning normally' (Angelucci 2023: 160)[5]. But the work also resists because it creates breaches in the historical dimension of being or, to use the terms of *What is Philosophy?*, restores something of that infinite movement in the finite (Deleuze & Guattari 1991). It is this that gives *The Handbook of the Spontaneous Other* its immediate political value: 'The dismantling of the assemblages makes the social representation take flight in a much more effective way than a critique would have done and brings about a deterritorialization of the world that is itself political and that has nothing to do with an activity of intimacy' (Deleuze & Guattari 1975: 47).

With the distinction between a practice of information (or counter-information), which alone remains ineffective as it is only reactive, and a true untimely act of resistance, the Deleuzian critique of the representation acquires a new angle.

Possible and Virtual

The relationships between a critical posture, negation, realism, and information and, on the other hand, an affirmative one, constructivism and resistance, also imply a different modal conception of being. If *Lights in the City* moves in the horizon of the possible, *The Handbook of the Spontaneous Other* has to do with virtuality. In what way?

I have shown how the ontology of Jaar's practice is realist: the real, the *status quo*, has for him the value of an identity principle, that which remains the same and against which everything must be measured and judged. This is why, when Jaar criticised and denounced the condition of the homeless, he was not questioning the broader system in which that condition was situated – that is precisely what was reified. He was merely changing its sign – revealing it but leaving the deeper structures that produced it untouched. Whether the Montreal homeless community was visible or not was a possibility of the broader socio-political system in which it was situated, a variable. Indeed, 'possibility is something that can be predicated of, or attributed to, a being that remains the same' (Colebrook 2005: 9).

Gegisian's work, on the other hand, was not about the realisation of a possibility and did not adhere to a principle of identity. Rather, it concerned the actualisation of virtualities, that Deleuzian intensive dimension of being that insists on the present by continuously transforming it without resembling it. The practice of collage does not take place *ex nihilo* but inserts itself within the real, capturing and expressing those virtual tendencies to continuously construct the future in a way that diverges from the present. To use Braidotti's words again:

> The present does not coincide flatly with a here and now (...). The present is part of a time continuum of ongoing flows. This is where Deleuze turns to Bergsonism. And what that means is that the present is simultaneously the record of what we are ceasing to be and the trace of what we are in the process of becoming.
>
> (Braidotti 2019: 465)

5 English translation by the author.

Gegisian's practice tries to capture those invisible traces of what we are in the process of becoming (virtualities – not possibilities) to weave them in more ethical ways.

However, it should be noted that, precisely because it does not retain an identity principle, the virtual is not, unlike the possible, something whose effects are known a *priori*. This, together with the anti-essentialism I have previously shown, binds artistic practices to experimentation. When dealing with the actualisation of virtuals, one can only proceed by trial and error. Then, as Deleuze and Guattari argue, 'Inevitably, there will be monstrous crossbreeds' (1980: 157). However, this is the only way in which the new can emerge, changing the present.

Effects and Affects

Eventually, I will consider the affective effects the two artworks produce. At the beginning of this text, I claimed how, from a Deleuzian perspective, works of art should be evaluated in the same way as any other existent: pragmatically, for the effects they produce at the levels of the affects. It is the affect, indeed, that makes it possible to overthrow the doctrine of moral judgement and hold together aesthetics and the ethical-political. Unlike moral judgement, however, affective evaluation is not transcendental, universal, or eternal, but rather immanent, singular, and depending on its context: a perspectivist, individual (note that the individual, for Deleuze, can also be collective and is not linked to the concept of person) and adjustable evaluation. In this respect, I can therefore only grasp the implications of *Lights in the City* and *The Handbook of the Spontaneous Other* by situating them in the climate in which they operate and according to a certain sensibility.

The affective strategy of *Lights in the City* is based on the so-called sad passions. As Jaar stated in an interview, its target is pain: 'The dome will be transformed by the occasion into a socially painful sign (...). This action will then be an attack on the social conscience' (2022). Nonetheless, I believe that in our contemporary context in which cynical affects and resignation are particularly violent, a work such as Lights in the City risks having the opposite effect to the one desired – being even more inhibiting. Furthermore, the appeal to guilt and pain (as the one to conscience) is for Deleuze and Guattari a clear sign of the workings of the moral court – the opposite of their strategy. It must not be forgotten that every production (and conservation) of affects is part of a psychic economy that has immediate ethical-political value, as it is one of the poles of Guattari's three ecologies (1989) that must be integrated into any practice that wishes to operate effectively, in the ontological sense that Deleuze and Guattari attribute to the term. Therefore, the effects that a work of art brings with it in this

sphere cannot be overlooked.

Gegisian's work, in this sense, not only produces a completely different effect to Jaar's but also has a different aim: 'Through pleasure, we find something generative and metamorphic' (2023a).

In this sense, using the words of O'Sullivan, 'We might say then that art practice involves the production of specifically joyful affects as opposed to sad affects – thefear and paranoia produced by our encounter with more typical affective assemblages (I am thinking here of the mass media)' (O'Sullivan 2010: 198). Critique, be it artistic or conceptual, is for Deleuze and Guattari also a form of clinic and must consider the dominant affects of a certain time and intervene in them, intertwining and modifying them with the affects it produces.

Conclusion

While remaining at a concrete level, the case studies I have focused on provide interesting insights into understanding the mysterious ethical-political functioning of art practices. The comparison of *Lights in the City* and *The Handbook of the Spontaneous Other* allows us indeed to grasp why, for Deleuze and Guattari, an artistic creation is that kind of practice that – through its affirmation of lines of flight, of something different from what is already given that escapes present times and therefore resists them – has immediate (although maybe indirect) political value. The paradox of resistance, evoked in the first passages, should then be understood as follows: a work of art does not have an ethical-political value by definition – it acquires it by functioning in this way. But only in doing so, is it a work of art.

Furthermore, the case studies showed that an ethical-political art practice (that, as we have now understood, is a redundant definition) does not need to refer directly to an issue and confront it. On the contrary,

> Political art does not always look political and art that looks political ('speaks' its message as it were) does not always operate politically. In fact art is not political in the typical – or molar and signifying – sense. It operates under a different logic. Such a politics, if we could still call it this, comes from this play with matter and with the production of difference.
>
> (O'Sullivan 2010: 193)

Indeed, the affirmative posture is not an exercise of representation and information, limited to pointing out a problem and denouncing it, but a continuous creation. Since the Deleuzo-Guattarian ontology is not realistic but rather constructivist, art practices should engage with the process of production of the

world, which is not something objectively and eternally given, a principle of identity establishing all its possible reactions that only needs to be described. It is in this sense that the work of Gegisian belongs to those art productions that 'have developed and tested a non-dialectical notion of resistance that goes beyond the concept of contradiction, negation and reaction' (Raunig 2010: 43). Although negation can be part of the strategy of an artwork, what is important is that it remains the secondary effect of an act of affirmation and not the main driving force of creation.

The mechanisms I have isolated also explain why Deleuze and Guattari believe that the political functioning of art is not to be found in a hidden meaning that should be interpreted but rather a form of experimentation. Indeed, if the lines of flight that an artwork inaugurates must be created by repetition and variation, its results cannot be predicted in advance and always risk failing – an artwork does not necessarily function.

Eventually, through the two works, I have shown how, for Deleuze and Guattari, an artwork should always be evaluated, like everything else, from the perspective of the affects it produces. It is only in this sense that art can have a clinical function.

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Chapter 10

Speculative Ethics? On Coupling Care with Relational Justice in 'Antiecological Times'

Silviya Serafimova

Department of Ethical Studies, Institute of Philosophy and Sociology (BAS)
silviya.serafimova @ips.bas.bg

Abstract

The major objective of this article is to clarify some moral concerns about Bellacasa's project of speculative ethics of care that affect the development of multispecies ethics in what she calls antiecological times. Specifically, I analyse how in striving to avoid moral absolutism or the so-called Ethics with a capital E, Bellacasa implicitly encourages moral relativism and moral naturalism based upon a particular form of ontological determinism. In this context, I investigate how Bellacasa's ethos of care can gain normative validity when coupled with a new type of justice that necessitates the recognition of affective equity in terms of other beings' positive and negative rights. As such justice, I point out relational justice in Lynch's sense, which can be elaborated upon in the discourse of multispecies ethics. By comparing and contrasting the role of affective and cognitive empathy for the recognition of multispecies relational justice, I argue that the latter can shed light upon how humans, as the only moral agents can make moral decisions not only *on behalf* of other beings, but also *for their own* sake.

Keywords: speculative ethics, care, relational justice, ethical gradualism, positive and negative rights

Introduction

The major objective of this article is to reveal the origin of the moral challenges to Maria Puig de la Bellacasa's project of speculative ethics of care (2017), the task of which is to decouple ethics from both moral and epistemic normativity in order to cultivate care based upon relational ontologies (see Bellacasa 2017: 69). Investigating the genealogy and the consequences of speculative ethics in a multispecies environment, I analyse how in striving to avoid moral absolutism or what she calls Ethics with a capital E (see Bellacasa 2017: 132–133), Bellacasa implicitly encourages the introduction of moral relativism and moral naturalism.

One of the general concerns about the naturalism in question is that it displays a particular form of ontological determinism[1] based upon the misinterpreted role of the relational ontologies above. Specifically, I explore why it is ontological determinism that raises the risk of Ethics with a capital E when one uncritically accepts Bellacasa's claim that obligations are 'what is "required of a phenomenon"' (Bellacasa 2017: 153). In this context, the major concern is that by equating obligations with what is 'obliged' by the natural order, one implicitly supports the assumption that the natural world's laws are moral laws. Then, instead of avoiding Ethics with a capital E, adopting such an approach leads to justifying a form of moral naturalism due to which natural laws provide a mode of ethical normalization (see Bellacasa 2017: 132) by analogy to what is 'normalized' by nature.

As a potential moral solution to the problems above, I suggest exploring how Bellacasa's ethos of care can gain normative validity[2] when refracted through the lens of a new type of justice that can contribute to recognizing the role of affective involvement in respecting other beings' positive rights of

1 The concept of ontological determinism has a long history in the field of philosophy of science (e.g., see Poincaré's arguments making room for the discussions about the compatibility of ontological determinism and epistemological indeterminism (see Heinzmann and Stump 2024)). I refer to Ingthorsson's interpretation of the so-called principle of ontological determinacy saying that 'reality is always perfectly determinate' (Ingthorsson 2020: 6; Newman 1992). Specifically, I elaborate upon Ingthorsson's claim that one's saying that reality is 'determinate' is not equivalent to saying that it is 'deterministic', although the former is a precondition for the latter (Ingthorsson 2020: 6). In this context, I argue that overrating the role of natural phenomena in grounding obligations, Bellacasa makes room for justifying ontological determinism that is deterministic. One of the most controversial consequences of the latter is that imposing moral naturalism in the human-non-human discourse revives the risks of moral absolutism.

2 Normative validity concerns 'the conditions that valid norms would fulfill if they could be justified' (see Habermas 1998: 42). Considering that Bellacasa's ethos of care meets some requirements in building a 'scenario of a pluralism of worldviews,' although displaying a different type of 'disintegrating communal ethos' than that suggested by discourse ethics (see Habermas 2005: 263), one may explore to what extent increasing people's awareness of the 'rational dissensus about fundamental standards of value' can foster reaching 'an agreement together about norms for living together in justice' (Habermas 2005: 263). In the case of Bellacasa's ethos, I argue that such an agreement can be gained by introducing relational justice (see Lynch 2021) that can regulate the interactions between different groups of humans and non-humans in both short and long terms (see Serafimova 2023).

flourishing and their negative rights of not to be killed[3] (see Stucki 2020).[4] In turn, the rehabilitation of affective equity in terms of rights necessitates tackling the role of unequal vulnerabilities in the field of multispecies justice (see Celermajer et al. 2020; Chao et al. 2022),[5] as projected into the so-called either-or dilemmas (see Serafimova 2019; 2023).[6]

As a candidate for such justice, I point out an elaborated version of relational justice in Lynch's sense (2021).[7] Its methodological benefits concern the recognition of affective equity that makes one responsive to others' vulnerabilities (Lynch 2021: 131–132) regarding non-human beings' positive and negative rights.

Based upon the clarifications above, I argue that developing Lynch's theory of relational justice in a multispecies environment can contribute to showing why the affective involvement of care suggested by Bellacasa does not necessarily trigger just treatment of non-human beings. Furthermore, determining the value of affective relations of care as a matter of justice makes room for revealing the relational gist of unequal vulnerabilities in positive terms, viz., as encouraging the introduction of constructive ethical

3 According to Stucki, to have a right means 'to have a claim to something and against someone' (Stucki 2020: 537). Specifically, claim rights necessitate others (people or the state) to take a 'correlative duty towards the right holder to do or not to do something' (Stucki 2020: 537). While negative rights are such claim rights that are correlative to one's negative duty to refrain from certain actions, positive rights are claim rights that are correlative to one's positive duty to provide the right holder with some good or service (see Stucki 2020: 537–538). In other words, while the negative right 'entitles the right-holder to have the duty-bearer *refrain* from doing an act', the positive right 'entitles the right-holder to have the duty-bearer *do* some act' (Wibye 2022: 482).

4 I extrapolate Stucki's definition of negative and positive rights of animals as claim rights (Stucki 2020: 537–538) to non-humans in general. Claim rights are suitable to the latter since they are '*passive rights*' addressing the conduct of humans as duty bearers rather than requiring non-humans to exercise them as right holders (see Stucki 2020: 538). Extrapolating the stance that regardless of being unable to become moral agents, non-humans require moral treatment as subjects of moral concern (see Rowlands 2017), one can argue that non-humans can have positive and negative rights, even though they can never become full legal agents as humans.

5 I adopt Chao et al.'s definition of multispecies justice which is underlain 'by Western continental philosophy and political theory related to rights and capabilities' (Chao et al. 2022: 4). In addition, I also refer to Celermajer et al.'s theory of multispecies justice by extrapolating it beyond the field of environmental and political theories (see Celermajer et al. 2020: 3; Serafimova 2023: 85).

6 By *either-or* dilemmas I understand hypothetical scenarios of multispecies origin that exemplify ultimate decisions about the choice of life and death as underlain by mutually exclusive negative rights of not to be killed. Refracting the *either-or* dilemmas through the lens of multispecies justice contributes to clarifying why they display ecological disasters 'generated by industrialization and capitalism' that 'cannot be contained by standard notions' of the concept of injustice (Celermajer et al. 2020: 1; Serafimova 2023: 87).

7 Lynch introduces relational justice by elaborating Fraser's well-known three-dimensional theory of justice, suggesting that the latter can be enriched with relational justice as its fourth dimension (see Lynch 2021: 119).

gradualism[8] that can have preventive functions for the development o*f either-*or dilemmas.

That is why, I suggest that reconsidering the normative validity of affective relations through the lens of relational justice is of crucial importance for avoiding the human criteria of thinking by analogy, viz., to project human ideas of what other beings' thinking and feeling should look like. Applying the criterion in question to beings whose sentience cannot be clearly determined such as plants and bacteria raises many concerns, as I demonstrate, when discussing a particular either-or scenario (see Lagerlöf et al. 2015) within the framework of Bellacasa's permaculture ethics in soil times (see Bellacasa 2017: 188–203).

By comparing and contrasting the benefits of affective empathy and cognitive empathy[9] in grounding relational justice, I raise the hypothesis that elaborating upon the normative role of relational justice in a multispecies environment can clarify how humans can make moral decisions not only *on behalf of* other beings, but also *for their own* sake (see Serafimova 2019; 2020; 2023) when their negative rights are at stake.

Bellacasa's Project of Speculative Ethics of Care

In her book *Matters of Care: Speculative Ethics in More than Human Worlds* (2017), Bellacasa sets the foundation for a new type of situationist ethics. Based upon a diverse spectrum of insightful ideas such as those of D. Haraway and J. Tronto, Bellacasa gives preference to ontologically determined ethicality over normative ethics that 'allows overlooking other potential contributions' (Bellacasa 2017: 142). In response to the concerns about speculative ethics' normative validity, Bellacasa argues that to 'engage speculatively with ethicality in the making as nonnormative might require a form of "suspended judgment," of deliberate indecision', which, however, does not necessarily imply 'ethical or political agnosticism or the dilution of obligation' (Bellacasa 2017: 155).

Judging by the clarifications above, Bellacasa's general line of thought regarding speculative ethics can be summarized to the following conceptual transformations fostering the development of

8 By contrast to empirical gradualism (Skirbekk 2016: 230), ethical gradualism prescribes how members of human species should represent other human or non-human beings on their behalf in a fairly moral manner (Skirbekk 1994: 81–82; Serafimova 2019: 85).

9 Considering the plurality of definitions of affective empathy, I adopt Maibom's definition. According to the latter, affective empathy is understood as a process in which the Self empathizes with the other's experience of emotion in a particular situation if the Self believes or perceives that the other feels that emotion, or imagines being in the given situation of the other (see Maibom 2014: 3). In turn, cognitive empathy is recognized as addressing the human capacity to re-center one's thoughts so that they can better reflect upon the thoughts of another person in a given situation than in one's own situation (see Maibom 2014: 2).

a holist process ontology. First, there is hegemonic 'Incorporated' Ethics with a capital E addressing the 'modes of ethical normalization' that ground its colonizing usage (Bellacasa 2017: 132–133). Second, the displacement of hegemonic Ethics is justified at the expense of the recognition of a particular ethos. The latter is defined as a web of diverse, but also mutually related ethicalities that are triggered by a speculative ethical imagination including non-human agencies, which, however, are not determined at the expense of human needs (Bellacasa 2017: 161). Third, the ethos of care is defined as a transformative, relational ethos that emerges within a necessary doing as a commitment to the plurality of living worlds (see Bellacasa 2017: 67, 147, 153).

Consequently, the ethos of care has the following illuminative embodiments. First, it makes room for the recognition of ethical obligations as constraints that are not negative, but derive from the phenomenon as such, '"enabling" the practice' that develops in close terms with the ways of being and doing (Bellacasa 2017: 152).[10] Second, the development of these ethical obligations occurs within the so-called permaculture care ethics[11] that modifies them as everyday doings in 'Working-with-nature' by decentering human ethicality (Bellacasa 2017: 130, 148).

In turn, the cultivation of care ethos within the field of permaculture as a matter of permaculture care ethics comes with its own challenges as well. According to Bellacasa, permaculture ethics that necessitates an 'intrinsic transformation of ethos' (Bellacasa 2017: 151) is situated ethics based on the implementation of the principle '"It depends"' (Bellacasa 2017: 150). The latter encourages the associated principles of caring by guaranteeing that '"personal" agencies of everyday care are inseparable from their collective ecological significance' (Bellacasa 2017: 150). Permaculture practices as such are defined as ethical doings that 'decenter human agency without denying its specificity' (Bellacasa 2017: 145).

Methodological Concerns

Moral Relativism

One of the most significant concerns about Bellacasa's project of speculative ethics of care is that while questioning moral absolutism brought about by already discussed Ethics with a capital E, speculative ethics inevitably raises the risk of turning permaculture ethics as situated ethics (Bellacasa 2017: 150) into ungrounded moral relativism. Specifically, I argue that the origin of the risk in question can be traced back to the overrated role of relational ontologies deprived of moral normativity. In other words, if speculative ethics of care is recognized as underlain by relational ontologies alone 'that engage with the material world… as composed of knots of relations involving humans, nonhumans, and physical entanglements of matter and meaning…' (Bellacasa 2017: 140–141), there is no normative guarantee for fostering these relations as moral.

Being under the influence of D. Haraway's theory of the so-called semiotic technologies including practices of creating meanings with signs, words, ideas, descriptions and theories (Haraway 1991: 187), Bellacasa adopts what she coins Haraway's 'situated politics of resistance to normativity, both moral and epistemological' (Bellacasa 2017: 71). Bellacasa claims that reducing the role of moral and epistemological normativity can provide us with some new insights for the possible interventions in 'the more than human worlds of technoscience and naturecultures, with their broken boundaries and imploded worlds where knowledge and ontology collapse' (Bellacasa 2017: 71).

Referring to Strathern's theory of 'cuts' (2004) as 're-creating, or being created, by "partial connections"' (Bellacasa 2017: 78),[12] Bellacasa draws a highly vague in normative terms conclusion, viz., that 'Thinking-with nonhumans should always be a living-with, aware of troubling relations and seeking a significant otherness that transforms those involved in the relation and the worlds we live in' (Bellacasa 2017: 83).

However, grounding the displacement of care agency into 'communities one cares for' (Bellacasa 2017: 80) does not explain how 'thinking *from* and *for* particular struggles require from us to work for change *from where we are*, rather than drawing upon others' situations for building a theory, and continue

10 Bellacasa refers to Stengers's term obligation in the field of the so-called ecology of practices (Bellacasa 2017: 152). Ethical obligations of care are examined as ethical doings that are underlain not by moral orders and norms, but by 'everyday ethos transformation' (Bellacasa 2017: 152).

11 According to Bellacasa, the term permaculture, attributed to Mollison (1988) and Holmgren (2002), addresses the cultivation of 'ongoing communal practices over time' that encourage renewal and fruitfulness by contrast to 'the antiecological depletion of resources' (see Bellacasa 2017: 128).

12 Bellacasa elaborates upon Marilyn Strathern's theory of 'cuts' (2004) dating back to her earlier article 'Cutting the network' (1996). Strathern argues that the concept of network is characterized by an 'auto-limitlessness' which is both its weakness and strength; specifically, the concept of network 'incites one to trace connections in every direction without end, despite the fact that networks—like any action, analysis, or interpretation—must have a point and therefore need to come to an end at some definite place and time' (Myhre 2013: 2). In her later book, *Partial Connections* (2004) discussed by Bellacasa, Strathern outlines the role of the imaginary of cutting in the field of ethnography. It is described as a 'decomposition of an imagined society or culture' that 'adds a correlative sense of unity or wholeness to the individual parts insofar as they can be considered on their own' (Strathern 2004: 109). For instance, Strathern compares and contrasts a Melanesian cyborg and Haraway's 'half human, half mechanical contraption' claiming that the different components are parts of persons or relationships fixed to one another (Strathern 2004: 118). On the one hand, the 'cutting/extension is equally effective' since the figures are equal in substance, while on the other, 'the outcome conserves or disregards proportion…' (see Strathern 2004: 118).

our conversations' (Bellacasa 2017: 86–87). If it is an obligation originating from the phenomenon as such (see Bellacasa 2017: 153) that 'requires' humans to experience a self-transformation, the latter is nothing but a *self-obligation to care* which has clear normative implications.

Considering the clarifications above, I draw the conclusion that within the speculative ethics of care, relational ontologies only disenchant the presence of some 'cuts' that create care, as well as show the necessity of introducing '"new patterns"' borrowed 'from a web of relationalities' (see Bellacasa 2017: 78). However, relational ontologies do not give a clue how exactly to do that because not all the 'cuts' require care.

Specifically, Bellacasa discusses how 'cuts' foster heterogeneity by claiming that an object of love 'creates patterns of identity that reorder relations through excluding some. In other words, where there is relation, there has to be care, but our cares also perform disconnection' (Bellacasa 2017: 78). The moral concern is that even if one thinks with care, such thinking cannot guarantee that 'cuts' will foster relationships rather than disconnect worlds (see Bellacasa 2017: 78). Furthermore, even if one assumes that feeling love for someone 'requires' thinking with care, there is no guarantee that this thinking can transform 'cuts' of jealousy, obsessive love disorder and other 'disconnecting' feelings into constructive 'partial' connections in Strathern's sense.

On a macro-methodological level, the issue is that relational ontologies cannot provide solutions to how we can ethically regulate relational agencies, considering that humans are the only beings able to become moral agents.[13]

On a micro-methodological level, the problem is that if the obligations are reduced to constraints coming from a particular phenomenon, there is no guarantee that what this phenomenon requires as an agency *of* humans will non-contradictorily correspond to what is required as a human agency *for* non-humans; e.g., when our vital needs as humans are put at stake at the expense of the vital needs of other beings.

Then, the question is *who takes responsibility for whom* when we argue for a non-human responsibility. If these are still humans, since speculative ethics of care does not exclude them from the practice of moral decision-making, the lack of normativity may lead to a renewed version of strong moral anthropocentrism due to which humans can take responsibility

13 One should keep in mind that not all humans (e.g., children, people with severe mental disabilities etc.) are and more importantly, *can* become moral agents (see Skirbekk 1994: 81–83).

on behalf of non-humans such as some endangered species.[14] The opposite scenario is that the lack of normativity can trigger radical eco-centrism that may encourage reverse discrimination, viz., endangered species can start living 'as well as possible' in Bellacasa's sense (Bellacasa 2017: 167) at the expense of humans by threatening human well-being, even when it is not necessary.

Moral Naturalism

The decentering of human ethicality through the practices of dis-objectifying non-human worlds ('by exposing their liveliness and agency') and de-subjectifying the human ('by trying to think of it as a form of ontological agency among others') (Bellacasa 2017: 141) can only formally contribute to showing the potential of speculative ethics as decentering 'the human subject in biopolitical collectives in technoscience' (Bellacasa 2017: 141).

Developing Bellacasa's line of thought points towards questioning speculative ethics of care as situated ethics whose implementation may lead to controversial moral naturalism in the field of permaculture ethics of care. Specifically, the major concern about moral naturalism is that Bellacasa makes room for interpreting the *either-or* dilemmas as provoked by natural processes alone, outlining that care is not immune from feeling pain, suffering and death (see Bellacasa 2017: 164, 202–203).

For instance, Bellacasa illustrates the inseparability of care from killing by providing the analogy that one weeds one's garden 'to make possible more fertile growth' (Bellacasa 2017: 164). In addition, she compares the inevitability of waste-food circulation with that of death and life and decay and regeneration, as suggested by Lyons (2016) (Bellacasa 2017: 202). Based upon the clarifications above, I argue that the recognition of the so-called soil-communities when they are based on '"trophic" relations' such as 'who eats whom' (Bellacasa 2017: 191) is morally justifiable only if one supports the way Bellacasa incorporates relational ontologies into the framework of implicit moral naturalism.

In this context, the concerns about speculative ethics as situated ethics fostering moral naturalism can be avoided if one raises not the question of *How*?, as Bellacasa suggests, but that of *Why*?[15] According to her, '*asking how to care*' is 'an open wonder about the ethico-political significance of doings of care

14 However, making a moral decision *on behalf of* an endangered animal, one should keep in mind that the latter is not only a *subject* (due to its incapability to cope with the environment), but also an *object of vulnerability* (provoked by human actions). That is why taking responsibility on its behalf is not similar to taking responsibility when the endangered animal is an *unavoidable object* of 'natural' vulnerability including sickness and death by natural causes (see Serafimova 2023: 86).

15 Bellacasa herself also mentions the questions of 'Who cares?', 'For whom?', 'What for?' and 'Why do "we" care?'. However, she emphasizes the primary importance of the question 'How to care?' (Bellacasa 2017: 61).

as immanent obligation' (Bellacasa 2017: 204). Being embedded into a politics of speculative thinking, the role of the relational ethos of care is to stay 'with the trouble of our own complicities and implications' (Bellacasa 2017: 204). However, if so, nothing can guarantee that humans can be sufficiently motivated (in the sense of obliging themselves) to stop producing human-generated disasters, even when they care for some beings affected by these disasters.

If obligations are what is required of the phenomenon (Bellacasa 2017: 153), there is no guarantee that phenomena 'require' morally permissible and just treatment of all the beings involved nor do they 'require' such a treatment at all. Considering that humans are the only moral agents in the multispecies discourse (see Serafimova 2019; 2023), they can interpret one and the same phenomenon differently due to their different moral worldviews.

For instance, Bellacasa discusses one's practice of composting as an ethical doing (Bellacasa 2017: 146). As Bellacasa herself cogently points out, 'good compost is not just a pile of organic waste…'; it requires developing some responsible compost techniques (Bellacasa 2017: 146). If so, however, one faces the following scenarios with different outcomes whose point of intersection is her idea that an ethical obligation is what is necessitated by soil as a phenomenon.

First, if humans *think* that soil is a self-sufficient phenomenon and take soil's needs as irrelevant to their own needs, they will not engage with composting as an ethical doing (*a disinterested attention scenario*).[16] Second, humans can take soil's needs for granted believing that they should be benefited by the soil as an unlimited resource for exploitation (*a strongly anthropocentric scenario*). Third, humans can be *obsessed* with thinking with care when striving to achieve a zero-waste lifestyle within the so-called extreme composting (see The Good 2021) (*a radical eco-centric scenario*).[17]

Fourth, one may *think with care* about the needs of the soil. Such a stance corresponds to Bellacasa's own view that one should 'become knowledgeable regarding the liveliness, and needs, of a pile of compost' (Bellacasa 2017: 146). However, knowledgeability is not a result of developing knowledge alone,

16 The theory of disinterested attention is introduced by Bence Nanay (2016) who elaborates upon Kant's view of disinterestedness. According to Nanay, disinterested attention does not address the object from a practical point of view, viz. the exploitation of the object is avoided because the observer is not focused upon one of its particular properties, while remaining aware of the object's coherence (see Nanay 2016: 24). It displays an attention that is 'focused with regards to objects and distributed with regards to properties' (Nanay 2016: 24).

17 As an exemplification of extreme composting, one can point out David The Good's 27th reason for composting saying that when 'you throw stuff in the trash, you're totally being like the devil and we'll totally judge you for it' (The Good 2021: 8).

but also an outcome of cultivating morally grounded behavior. The latter should be strongly motivated by one's moral commitment to respect the value of soil within the holistic moral practice of preserving the biosphere's value. This scenario, which is only one of the many possible scenarios regarding Bellacasa's theory of obligations, can be coined as a relevant scenario of *moderate anthropocentrism*. Specifically, it should take into account the profound clarification that even though human values are inevitably *anthropogenic*, they are not necessarily anthropo*centric* (see Kenter and O'Connor 2022: 2535).[18]

Based upon the clarifications above, I reach the conclusion that speculative ethics of care fosters moral naturalism (assuming that the balance of nature is a moral balance) which is closely tied with a certain type of moral relativism. In turn, the latter can be described as triggered by the lack of normative validity of the way of thinking with care determined by Bellacasa's principle '"It depends"' (Bellacasa 2017: 150) as a guiding principle of interaction.

Practical Implications of Moral Relativism and Moral Naturalism

One faces some contradictions in evaluating the impact of what Bellacasa calls remediating '*neglect*' (Bellacasa 2017: 162) and accepting '*noninnocent care*' (Bellacasa 2017: 164). The reason is that noninnocent care cannot engage one 'to share troubles and burdens of the neglected' (see Bellacasa 2017: 162) only by seeing and touching in Bellacasa's sense (see Bellacasa 2017: 119–120). Nor can one console with the assumption that care is inseparable from killing, when the vital needs of different beings are at stake on the principle *either-or*.

The challenges of remediating the '*neglect*' can be traced back to the difficulties in transforming what Bellacasa calls engaged curiosity[19] into an agency of care. Even if one engages curiously with a way of doing by developing ethical sensitivities (see Bellacasa 2017: 199), the result is not necessarily engagement with care since engaged curiosity is not morally sensitive by default.

Some of the concerns above are articulated by Bellacasa herself, while arguing that to be touched or touch 'doesn't automatically mean *being in touch* with oneself or the other' (Bellacasa 2017: 99). However, Bellacasa fails to show what is the 'specific and situated' that can 'teach us' (Bellacasa 2017: 116) in normative terms, as well as what will make us *willing* to be taught that way.

18 This stance differs from the so-called perspectival anthropocentrism emphasizing the *inevitability* of making all our valuations from a human perspective (see Ferré 1994: 72). Elaborating Kenter and O'Connor's theory, I argue for the methodological benefits of ethical gradualism following from this 'inevitability' in moral terms rather than outlining its deterministic character.

19 The concept of engaged curiosity is borrowed from Haraway as indicating 'better caring for others in interspecies relations' (Bellacasa 2017: 92).

The problem is that *noninnocent* care cannot maintain the balance of relationality 'happening in between', while preserving the dialectical tension between 'personal' attachments and 'collective' compelling relations on the one hand (see Bellacasa 2017: 166) and that between different beings' vital needs, as embedded into different vital interests and rights, on the other. Extrapolating Bellacasa's interpretation would mean that if permaculture obligations display survival necessities embedded into one's negative right of not being killed, *noninnocent* care should prescribe whose necessity matters more when two survival necessities are mutually exclusive.

Judging by the clarifications above, I argue that the major challenge to *noninnocent* care within permaculture ethics is not to coin already discussed relations 'who eats whom' as a matter of natural decay (Bellacasa 2017: 191) alone, but rather to reconsider the role of the human-induced changes. The latter can be recognized as encouraging the conceptualization of the ontological necessities, as refracted through the lens of claim rights in compliance with the associated ontologically justifiable vital needs.

Specifically, *noninnocent care* does show that 'care is inseparable from killing' (Bellacasa 2017: 164), but not for the reasons Bellacasa points out. That is why I conclude that care is inseparable from killing due to the necessity of graduating mutually exclusive positive and negative rights of both humans and non-humans who all strive to live 'as well as possible' (Bellacasa 2017: 167).

Either-or Dilemmas in Soil Times

What Bellacasa describes as soil times is driven by the attempt to build 'a transformative ethos in human–soil relations' that goes beyond science towards 'articulations of alternative affective ecologies and technoscientific imaginaries' (Bellacasa 2017: 195). The soil food web model is defined as 'a symbol of alternative ecological involvement' (Bellacasa 2017: 195). Its major objective is to introduce alternative ecological doings that can avoid 'the reduction of soil to a resource for humans' (Bellacasa 2017: 170) by encouraging a 'more soil-attentive mode of care' as '"living"' (Bellacasa 2017: 188).

By living soil, Bellacasa understands soil that 'can only exist with and through a multispecies community of biota that *makes* it, that contributes to its creation', considering that biota includes microbes, invertebrates, fungi, roots and plants (Bellacasa 2017: 189). Thus, soil care finds a place in the permaculture ethics of care by anticipating 'the worth of bacteria and other microbial nonhumans' – by looking at the bacteria, counting them, feeling them and learning to feed them (Bellacasa 2017: 199).

Among the practices mentioned above, probably the most controversial one is that of counting the bacteria as a premise for cultivating care. This means that assessing soil health based on the 'estimated count of microorganisms' can be recognized as one of the ways of detecting the needs of the soil (see Ingham in Bellacasa 2017: 196), which, however, does not necessitate the cultivation of care. The reason is that the methods of calculating make room for the traditional strong concerns about utilitarianism, viz., when and how the number (of bacteria) begins to matter in moral terms.

Based upon the specifications above, I argue that if one examines the ethos of soil care as refracted through the lens of human-generated disasters of the type *either-or*, its 'living' gist is put in question, unless care is coupled with a particular justice.

Relational Justice in 'Soil Times'

The Role of Affective Empathy for Relational Justice

As such a new type of justice, I point out the so-called relational justice (Lynch 2021) that can contribute to the recognition of multispecies care through the reduction of unequal vulnerabilities by cultivating different types of empathy (see Serafimova 2023: 94–95).

Specifically, I suggest examining the ethos of soil care in the field of affective empathy which can be considered as one of the premises of relational justice. If one explores permaculture practices by refracting the touching visions with care (see Bellacasa 2017: 119) through the lens of affective empathy (see Maibom 2014: 3), one can at least partly reveal how humans can 'feel' the emotions experienced by the bacteria in the soil food web model, while being guided by the principles of affective equity. Thus, a crossing point between the ethos of soil care and affective empathy can be found in what Bellacasa defines as affective involvement (Bellacasa 2017: 197), viz., 'seeing' the 'living' soil as a condition for caring about it without objectifying it.

Bellacasa herself provides a double-bind interpretation of the role of empathy. On the one hand, she argues that care does not have to be confused with sole empathy or with the spokespersons of the discarded (see Bellacasa 2017: 86). On the other hand, Bellacasa positively evaluates farmers' affective involvement with soil who treat it with 'the commitment, concern and empathy normally reserved for close family members' (Bellacasa 2017: 197).

If, however, sensitive proximity is recognized as a necessary and sufficient condition for building the ethos of soil care, what can make us engage with the cultivation of care for the distant other (such as bacteria that we cannot see, count and feed) or more

importantly, for the invisible other whom we cannot or do not want to see as deserving visibility (e.g., soil microbes)?

Asking such questions brings the issue of unequal vulnerabilities back to light since there is no guarantee that seeing will encourage caring. That is why I conclude that refracting Bellacasa's theory of soil care through the lens of affective empathy has a limited scope of application – when engaged curiosity triggers care by default. In addition, the problem is that since bacteria, fungi and invertebrates have no thoughts and feelings (or at least, not such we are familiar with), humans rely upon their own perspective-taking in the process of affective involvement, viz., humans think by analogy assuming that they *do feel* what fungi, bacteria and invertebrates *feel as a need for care*.

The most illuminative concern about relying upon affective empathy, as based upon affective involvement of care is that in the best possible scenario, the soil care ethos can make humans spokespersons of the fungi, bacteria and invertebrates. This means that humans should do their best to care for the fungi, bacteria and invertebrates *on their behalf*. However, nothing guarantees that such care will be *for their own sake too*, viz., that such care is needed at all.

The Role of Cognitive Empathy for Relational Justice

If relational justice is grounded in cognitive empathy, care can better address the challenges of the soil food web model in terms of the unequal vulnerabilities it produces. Specifically, the contribution of cognitive empathy can be found in its justification as a professional empathy that encourages the re-centering of our thoughts (see Maibom 2014: 2) to the vital needs of the fungi, bacteria and invertebrates within permaculture ethics. The particular implications of such empathy can be traced back to the fact that human beings cannot refocus their thoughts so as to display the fungi, bacteria and invertebrates' thoughts, as they can presumably do if the objects of interest are some other humans.

The contribution of cognitive empathy in a multispecies environment can be found in how it grounds the *collective* first-person perspective as a matter of expertise, as well as justifies the *third*-being perspective instead of the third-*person* one.[20] However, such a justification does not assume introducing a direct analogy by extending the third-person perspective to the third-being one. There are two major reasons for that. First, non-human beings can never become moral agents since they can only be objects of moral concern (see Rowands 2017). Second, by being the only moral agents, humans can partly reduce the unequal vulnerabilities

20 Some researchers encourage the dissociation of the perspective-taking and empathy (see Goldie 2011; Stietz et al. 2019). However, I refer to Maibom's theory of the perspective-taking shift as a matter of cognitive empathy (Maibom 2014: 2).

experienced by non-human beings.

Consequently, I argue that cognitive empathy underlying relational justice can make it have a preventive function by introducing ethical gradualism that can positively affect the experience of extreme vulnerabilities. This means that ethical gradualism can justify the experience of lesser vulnerabilities regarding the reasonable reduction of non-human beings' positive rights of flourishing in order to avoid the stronger vulnerabilities concerning the violation of their negative rights of not being killed. Specifically, professional cognitive empathy can restrict the violation of the fungi, bacteria and invertebrates' negative rights to a minimum by developing an expertise of how one can ethically graduate their positive rights of flourishing in both space and time.

The Contribution of Relational Justice: Exemplification

Suppose that the balance maintained by the so-called plant-growth promoting rhizobacteria (PGPR) and biocontrol agents (BCA) against plant diseases (Lagerlöf et al. 2015) is violated. Then, the potential negative effects regarding the production of enzymes and antibiotics in high concentrations may affect some so-called non-target soil organisms such as earthworms (Lagerlöf et al. 2015: 159).

Translating Lagerlöf et al.'s experiment in the language of the *either-or* dilemmas, we face the following multispecies scenarios of relating *moral permissibility to justice*: 1) *either* the side effects of the PGPR are neglected and this leads to preventing plants from diseases but killing the earthworms, viz., we accept that it is *morally permissible* to kill the earthworms because thus, we can encourage plants' growth, although it is *unjust* for the earthworms; 2) or the negative effects of the bacteria are reduced so that the earthworms are saved, regardless of the damages to the plants, viz., we agree that it is *morally permissible* to save the earthworms at the expense of the plants, which is *unjust* for them.

In the language of Lagerlöf et al.'s experiment, one can elaborate upon the following promising scenarios by introducing relational justice. If the positive right of the plants (that of flourishing) is decreased in time without being violated (suppose that plants' growth is limited for a year by reducing the PGPR), one can avoid the violation of the earthworms' negative rights of not being killed. Furthermore, if the BCA against plant diseases are decreased, but PGPR, as free-living soil bacteria beneficial to plant growth are estimated as sufficient, one may preserve the positive rights of both the earthworms and the plants due to guaranteeing them a certain undeniable degree of well-being.

Consequently, if future studies confirm Lagerlöf et al.'s conclusion that the 'high doses of BA with concentrations at the same magnitude as maximally expected when the bacteria are

used as PGPR and BCA' (2015: 159) do not harm the earthworms, one can argue not only for guaranteeing the preservation of the bacteria, plants and the earthworms' negative rights, but also for balancing their positive rights in both short and long terms.

Conclusion

The major objective of this article is to clarify why in striving to avoid moral absolutism, Bellacasa's theory of speculative ethics raises some significant concerns about moral relativism and moral naturalism in the field of human-non-human studies. Specifically, I consider her attempt to avoid both moral and epistemic normativism controversial since it inevitably makes what she calls ethos of care vulnerable to the pitfalls of ontological determinism as deterministic. That is why I argue that, aiming at the rehabilitation of relational ontologies of human-non-human beings, Bellacasa neglects the assumption that there is no guarantee that obligations deriving from the phenomena as such will be internalized by the Self as self-obligations, nor are these obligations moral by default.

In turn, the ethos of care developed within permaculture ethics as speculative ethics cannot contribute to solving *either-or* dilemmas in a multispecies environment. The reason is that the *either-or* dilemmas do not result from natural phenomena alone, as Bellacasa claims, but also arise from human-generated disasters that necessitate humans to take moral, social and political stances on preventing them. Consequently, I see the major disadvantage of speculative ethics of care based upon moral naturalism in neglecting the fact that humans are the only moral agents who can make decisions about other beings' positive rights of flourishing and their associated negative rights of not being killed.

In this context, I suggest that coupling care with relational justice can enrich the process of affective involvement in Bellacasa's sense since the justice in question provides us with a morally graduated approach to regulate the diversity of unequal vulnerabilities in terms of rights. In other words, relational justice can clarify how humans can make moral decisions not only *on behalf of* other beings, but also *for their own sake*, considering that these beings can never become moral agents.

However, I specify that relational justice based upon affective empathy is a necessary but not sufficient condition for building ethics of care. The reason is that affective involvement deprived of normative validity can only highlight the occurrence of multiple vulnerabilities, as well as show that they are unequal.

That is why, instead of relating care to affective empathy, one can couple it with cognitive empathy, as underlying relational justice. The benefit of adopting cognitive empathy is that it is based upon an elaborated perspective-taking, viz., that of the first-*collective* (*human*) perspective and the third-*being* perspective. Specifically, relational justice grounded in cognitive empathy can encourage the moral graduation of lesser vulnerabilities regarding one's positive right of flourishing for the sake of preventing stronger vulnerabilities such as those concerning non-human beings' negative rights of not being killed.

Furthermore, if care is coupled with professional cognitive empathy that adapts the displacement of care due to the beings' vital needs and rights here and now, one can make a normatively grounded prediction of what this care should look like in the future. Such a prediction can be justified by evaluating the potential specificities of non-human beings as moral subjects, viz., by normatively relating the potential consequences of their vulnerabilities to their associated positive and negative rights.

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Chapter 11

How About Green? Imagining Urban Green Infrastructure in Bucharest with the Help of AI Tools

Teodora Ungureanu (1), Andreea Cătălina Popa (1), and Ștefan Bunicelu (2)

(1) The National Institute for Research and Development in Constructions, Urbanism and Sustainable Spatial Development (URBAN-INCERC), Bucharest
(2) Super Serios Collective, Bucharest
teodora.ungureanu123@gmail.com
popaandreea08@yahoo.com
stefanbunicelu@gmail.com

Abstract

The intense heatwaves across Europe in the last decade have highlighted the devastating effects of climate change. The Romanian urban environment has suffered the consequences of this environmental imbalance, as cities with too little green space have to cope with higher temperatures and poorer air quality, raising awareness of the need for green infrastructure solutions.

The present research takes into account the Romanian urban legislation that allowed private interests to impact the quality of urban spaces by often reducing or even removing urban green spaces. Our study explores the possible applications of AI representation tools in visualising sustainable urban areas in Bucharest. We focus on employing AI tools to visualise

potential dynamic and ecologically balanced public areas. The method implies the merging of the physical urban environments in Bucharest with digital representations of potential green infrastructures using on-site photography, sketching, and AI-powered visualisation tools.

Our goal is to change the current urban discourse, which is currently focused on car-centric urban development, into a more engaging topic: exploring how green infrastructure in our city may promote healthier living. The results depict a potential future for Bucharest: a cityscape enhanced by flourishing green areas, fostering a balanced coexistence between urban development and ecological goals. Concepts that are presented through technical documentation may be difficult for the residents to grasp and may be better communicated with the help of these visualisations. Thus, visual representations of a greener urban future can help simplify complex ideas and facilitate understanding, leading to greater community engagement and support for sustainable initiatives.

Introduction

Cities in Romania: Legislative Ambiguity, Real Estate Aggression, and Civic Pushback

Bucharest, the capital city of Romania, is a 'magnet city' that is attracting a significant workforce and population, resulting in ongoing expansion (Cristea et al. 2017). This shows that the current urban environment is experiencing significant densification, both within the city and by expanding into peri-urban areas (Ungureanu and Șoimoșan 2023; Stoica, Zamfir and Vîrghileanu 2021). The ongoing growth puts pressure on unbuilt land, among which are green spaces. Our research begins by questioning the sufficiency of green public spaces in Bucharest.

The present legislation requires cities to develop the Green Register, a database containing information about all green public areas in the city (Ministry for Regional Development and Tourism 2010). In 2013, Bucharest's Green Register reported 23 square metres of green space per person. While this number may seem sufficient on paper, further investigations revealed that many of these reported green areas are poorly maintained and inaccessible to residents. Furthermore, a significant portion of the green spaces reported by the 2013 Green Register are actually located on private property and not accessible to the public (Iojă 2022). Recent studies have shown that the number is kept artificially high by measuring not only the private green space but also by not taking into account the population that resides in Bucharest but has no official residence papers in the capital, thus the actual surface of green space per capita is expected to be smaller. Current Romanian legislation mandates cities to offer at least 28

square metres of public green space per resident. However, these percentages become less relevant when considering factors such as the availability of green public places, since almost half of the population does not have a park close to their house (Iojă 2022). Lack of access to green places might have a significant influence on Bucharest citizens' physical and emotional health (Cernicova-Buca, Gherheș, and Obrad 2023).

Currently, the legislative Romanian context is undergoing changes on the urban level with the forthcoming adoption of the new Code of Territorial Planning, Urbanism, and Construction (Ministry of Development, Public Works and Administration 2023). The debate phase of the new law has again shown a clear division between private interest and civic desire. Certain articles of the current code are determining large debates in the media. One such stipulates that plots that are integrated into a land-use of green space cannot change their land-use, be they public or private spaces. This rule has sparked controversy and debate among citizens and real estate actors. The real estate investors claim their private right to change the use of a private plot thus they insist on removing the private aspect from the impossibility of changing the function of the green space in the current proposal of CATUC (Ivanov 2023). However, environmental activists argue that preserving green spaces is vital for the well-being of the community and should take precedence over private interests (Fundația Alex Găvan 2024).

This is a critical issue that continues to spark debates and divide opinions, given the recent increase in the privatisation and land-use change of public green spaces in Bucharest. The most accurate view of the green spaces' current status is from street level. We are confronted with issues like inadequate maintenance and the degradation of sections of parks and green spaces. The most recent example is the case of Alexandru Ioan Cuza Park, known as IOR Park, where a series of restitution and litigation lawsuits have led to the transfer of a considerable area of the park to private ownership. This has sparked a large public outrage with protests and the establishment of an association for the protection of the park: the Civic Initiative Group Parc IOR-Titan. The group aims to undo the privatisation and preserve the park for public use while fostering an environment conducive to sustaining a local community (Sebastian 2023).

The Potential of the Urban Green Infrastructure Concept for Bucharest's Public Green Space and Quality of Urban Life

To better understand the potential of implementing a strategy of development for urban green infrastructure, we need to understand its definitions. Because the concept of green infrastructure is not a new notion in urban practice, definitions vary

depending on the type of area, use, and effects (Gavrilidis et al. 2020). We took into account two definitions:

(i) The European Environment Agency's definition, which takes into account different space types and some functions, refers to it as 'vegetated green surfaces, such as parks, trees, small forests, grasslands, but also private gardens or cemeteries' that support 'biodiversity, pollinators, carbon sequestration, flood protection, and protection against excess heat events' (European Environment Agency 2021).

(ii) That provided by Tzoulas et al. is 'all natural, semi-natural, and artificial networks of multifunctional ecological systems within, around, and between urban areas, at all spatial scales' (Tzoulas et al. 2007).

These definitions highlight the importance of green infrastructure in urban areas for ecological, social, and health benefits. They emphasise the need for a holistic approach to planning and designing green spaces at different scales in order to maximise a positive impact on the environment and human well-being.

Working with a rapidly expanding city often forces architects and urbanists to confront issues of conflict and competition for urban space. Such is the case in Bucharest, where development plans focused on real estate expansion compromise green spaces and where car-centric design dominates, causing conflicts with pedestrians and cyclists. This car-centric design impacts the urban environment on two levels: the growth in the number of personal cars has generated a need for parking space which usually takes over green and unbuilt spaces, and the prioritisation of personal cars impacts the allocation of road space, creating an unsafe and impractical space for all types of pedestrians and cyclists (Colville-Andersen 2018; Gehl 2010).

Green infrastructure can play an important role in promoting urban sustainability by providing a series of benefits: environmental, social, or economic. With the help of green infrastructure, cities can improve their livability, resilience, and sustainability, in addition to offering a host of other advantages to both people and the planet (Giudice et al. 2023). Studies have shown that elements of green infrastructure, such as parks or tree-lined streets can help mitigate the phenomenon of urban heat island, usually present in densely built urban areas (Akbari et al. 2001). As an additional measure against the harmful impacts of traffic congestion, green infrastructure can help improve urban water and air quality (Nowak et al. 2006). Easy accessibility to

green spaces has been associated with several beneficial impacts on mental and physical health, which contribute to overall well-being and quality of life (Gascon et al. 2016).

We framed an inquiry that focused on Bucharest's context and the concept of urban green infrastructure, utilising the resources and expertise of our professions as researchers, architects, and geographers. We wanted to investigate how visualising green infrastructure scenarios in Bucharest could easily enhance environmental and social results. We conducted experiments in heavily populated and dense areas that were the result of car-centric urban development.

Materials and Methods

In previous research we have debated the role of visual representation in the understanding of urban planning documentation and technical plans (Ungureanu et al. 2019; Ungureanu et al. 2020). Given the importance of urban planning documentation, citizens should be offered different solutions of understanding technical plans and specific language used in these documents. Our findings suggest that utilising visual aids in urban planning documentation can significantly improve comprehension and decision-making processes. Furthermore, we have tested the potential of providing interactive tools or virtual reality experiences to further enhance citizens' understanding of complex technical plans (Mandea et al. 2023; Ungureanu and Mandea 2021). By making urban planning documentation more accessible and user-friendly, communities can be more actively engaged in the decision-making process and ultimately contribute to the development of sustainable and livable cities.

Given the fact that architecture and urban planning rely on representation and visualisation as means of comprehending, conveying, and shaping the built environment, the need for efficient portrayal and understanding is growing in importance as urban areas develop and become more complex. Recent technological advances, however, have brought new tools that assist in decision-making by improving visualisation and simulation.

Augmented reality (AR), virtual reality (VR), and artificial intelligence (AI) are parts of these tools. AR with the help of phones or tablets, overlays digital information on the real world, providing an interactive experience. In urban planning, AR can be used to provide supplementary information to documentation masterplans, helping the citizens to visualise the proposed projects in different forms, such as videos or rendering (Ungureanu et al. *2020*). VR provides a more immersive experience, using devices such as VR glasses, users are part of a completely virtual environment that can provide a 3D simulation of real or imagined spaces. In urban planning, VR can present a more tangible sense of proposed

designs, citizens can walk through and interact with the space before it is built (Portman et al. 2015; Shahat et al. 2021).

While AR and VR are technologies that require the development a *priori* of a 3D model that can be then visualised, new advancements in AI technology can not only generate visualisations, but can also aid the design process by creating the 3D model itself. Furthermore, AI tools can be used in the design workflow and urban analysis due to the capacity to predict urban processes such as growth patterns, traffic flows, or environmental impacts (Batty 2023). In architectural design, AI tools, particularly text-to-image generators, have the potential to contribute to conceptual design by providing diverse and innovative visualisations, but their effective use requires further research, tailored data, and an understanding of the interplay between AI-generated outputs and human creativity (Horvath and Pouliou 2024).

AI Visualisation Tools and Urban Design

AI is already changing architectural and urban design culture in various ways. Various design studios are fully embracing the new technology as co-creators of new design proposals. While the media may embrace the futuristic potential of AI in architecture, scepticism remains about its ability to truly enhance human creativity and innovation, with Leach calling the resulting images 'hallucinatory' (Leach 2021). Unlike the common perception of AI as a tool for creating futuristic cities (Leach 2021), our proposal focuses on making real choices for the here and now.

In architecture and urbanism, the visualisation of different solutions is a main tool that aids the design process by allowing designers to explore various possibilities and make informed decisions. AI tools can assist in this process by generating diverse design options based on data and parameters provided by human designers, contributing to the creative potential of the projects.

Visualising potential solutions is part of the design process in the fields of architecture and urban planning. Through this, the designers are able to investigate several options and make well-informed choices. AI tools can assist in this process by generating diverse design options based on data and parameters provided by the designers, contributing to the creative potential of the projects (Horvath and Pouliou 2023).

The tool we employed to generate the green simulations of Bucharest was Stable Diffusion 2.0. The open software uses a generative model to develop highly photo-realistic images, creating them from text and image prompts. Stable Diffusion has shown promising results in generating realistic images and understanding various properties of 3D scenes, such as scene geometry, support relations, lighting, shadows, and depth (Zhan et al. 2023). Thus,

we considered that Stable Diffusion could have the capacity to work with and change existing pictures of urban environments. We tested the notion by giving Stable Diffusion photos of Bucharest's city centre and its surroundings. We used the software's algorithms to modify the current photographs and visualise a more environmentally friendly and sustainable urban environment. The results display a city that has been changed, with extensive green areas and streets designed for pedestrians. This new simulation can be a great medium for communicating our recommendations for a more environmentally friendly Bucharest to city officials and stakeholders.

Car-centric Interstitial Spaces as Possible Public Green Spaces

Working with the urban environment, our methods start with the use of publicly available remote sensing data to analyse the current state of Bucharest's green spaces and to identify potential areas that could be transformed into public green spaces. By integrating AI tools, we aim to develop scenarios of urban interventions that improve the environmental quality and social well-being in the city. The research steps were:

1. **The identification of interstitial spaces that were a clear result of a car-centric design:** informal parking lots, traffic islands, and unused roadways that could be transformed into vibrant public green spaces. By using remote sensing data, we were able to pinpoint these areas.
2. **On-site photographic study:** after deciding on potential intervention spaces, we looked for urban images that best represented the current situation and could have a significant impact when changed using AI tools.
3. **The analysis of green scenarios using AI visualisation tools:** allowing us to easily create various intervention proposals for the transformation of these interstitial spaces into green public areas, with the aim of enhancing the urban environment and promoting sustainability. This process helped us visualise the potential impact of our interventions and make informed decisions on the most effective strategies for implementation.

Bucharest Case Study Selection

The selected case studies had to comply with four criteria:

1. The spaces selected should be in an area with **predominant housing land-use or a mixed-**

use area. This responds directly to new urban trends such as the *15-minute city*, which requires pedestrian accessibility for a travel time of 15–20 minutes, not only to urban amenities but also to public green spaces (European Commission 2020). Moreover, urban design guidelines from the socialist period called for housing blocks to have public green spaces within 2–5 minutes travel time from the dwellings (Gusti 1974).

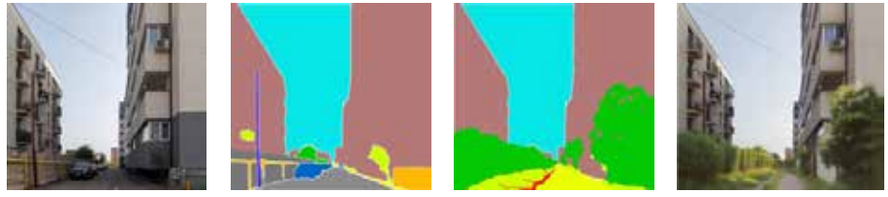
2. The spaces chosen were in areas with poor pedestrian infrastructure as a result of **a car-centric urban design**. These areas often have sidewalk discontinuity, a lack of crosswalks, or limited pedestrian amenities. They are a result of the recent focus on making personal traffic more efficient and fluid at the expense of active mobility, such as walking, cycling, or other means of movement, or public transport.
3. The vicinity of the spaces chosen for intervention usually has **insufficient greenery**, thus highlighting the potential for improvement. As shown in the introduction, Bucharest's relationship with green public spaces is complex. On the one hand, civic groups are increasingly raising the issue of the poor state of green spaces, on the other hand, real estate pressure is leading to a substantial loss of these spaces.
4. The selected locations should have enough **space for future changes**. As can be seen in figures 11.2 to 11.4, the proposed places are usually leftover, interstitial spaces that have no clear delimitation of use. This ambiguity has often led to their transformation into car parks. Thus, a public space with potential is occupied by the private property (car) of a few inhabitants (Belenyi et al. 2021).

These criteria were employed to ensure that our interventions would have a meaningful impact on the urban environment and benefit the local community.

Results and Discussions

The use of AI tools to generate greener city scenarios. Our research does not focus on AI as a co-designer for green interventions; rather, we propose the use of AI as a tool that can facilitate a faster method of generating conceptual imagery of spaces that can be part of urban green infrastructure scenarios. By utilising AI tools, we aim to simplify the process of visualising

potential green interventions in urban spaces. This approach could allow for quicker decision-making and the implementation of sustainable practices in city planning, as visualisations can be more easily understood by local community than technical plans.



a b c d

Figure 11.1: The steps of working with the existing urban environment to create green city scenarios

We employed Stable Diffusion in a three-part process: recognising initial image elements, we determined which elements the AI should retain or alter to transform selected elements into a green space simulation.

The initial phase was Stable Diffusion identifying the 'objects' present in the original photo of the urban context. The AI examined the photo and generated a colour-coded map for the discovered objects (Fig. 11.1b). This procedure is called *colour segmentation*, where each colour represents an individual object.

In the second phase, we instructed the AI to modify particular objects in the photograph by altering their colours and shapes to symbolise components of green infrastructure (Fig. 11.1c). The text-prompts used were linked to the green city movement: green space, park, trees; but also elements that describe a lively urban environment such as: people enjoying a walk or people biking.

The new images created combine the original scenario and other AI variations, using Stable Diffusion to produce new images that adhere to the required 'objects'. The final outcomes we choose depict the most coherent illustrations that may be utilised to showcase the possibilities of implementing urban green infrastructure scenarios in the study areas (Fig. 11.1d).

The Importance of Green Spaces Beyond Car-centric Interstitial Spaces

The three case studies were chosen to reflect the ongoing trend of urban growth in Bucharest, which focuses mostly on real estate development, disregarding elements that could improve the quality of urban life such as urban amenities or public green space (Gavrilidis et al. 2020).

The first case study represents a space defined by the crossroads of three streets: Orzari St, Delea Veche St and Călărași Avenue. This is a typical example of a boulevard intersection in Bucharest, a project developed in the 1980s and constructed at the beginning of the 1990s: at an urban form level, the space is bordered by dense high-rise collective housing; at eye-level, the pedestrian is surrounded by illegal and unsanctioned parked cars. Through our proposal, we identified the elements that could accommodate change (the informal parking island) and one of the

Figure 11.2: Case study 1. A crossroads of three streets: Orzari St, Delea Veche St and Călărași Avenue in Bucharest

road junctions in order to replace the interstitial spaces occupied by cars with public green spaces; see Figure 11.2.

The next two case studies are located at the periphery of Bucharest, in the Palady area. Due to the pressure of the real estate market and the lack of stricter urban codes, the periphery has developed far too densely and monofunctionally, with little to no public urban amenities or green spaces (Ungureanu and Șoimoșan 2023).

The second case study is situated on Gura Putnei Street and is formed of four storey high collective housing blocks. We considered the space between four housing blocks and proposed a change from a car-park to a liveable green space; see Figure 11.3. There is already relevant research that shows the negative effects of car-centric design on the well-being of residents, but current

Figure 11.3: Case study 2. A parking lot can become a vibrant green space

local urban codes do not link high-built density with the need for public green spaces (Ungureanu 2021).

The third case study is in the same neighbourhood, on Gura Putnei Street. It is defined by two residential blocks of 6 and 8 levels and single-family dwellings on the other side. Because the area the buildings enclose has the potential to form a square, we chose this example. By reimagining the urban fabric with the integration of green infrastructure, we can promote the image of a resilient environment in Bucharest. Although the urban form allows the design of public space in front of the building block, it is currently a parking lot. Our proposal envisions a public plaza with green space, that has the potential to foster an environment centred around the community and promote social interaction among residents, in an urban environment currently lacking any meaningful gathering places; see Figure 11.4.

Figure 11.4: Case study 3. A parking lot can become a public square with green elements

In these case studies, we aim to showcase how strategic punctual interventions can transform these underutilised spaces into vibrant and sustainable urban public areas that prioritise the well-being of residents and pedestrians. The use of AI visualisation tools plays into the current trend in media and social networks of showcasing before and after images of streets transformed from car congested and unsafe to human-centric design. One such example is the project implemented in Paris, where streets around more than 200 schools have undergone a change by becoming pedestrian, receiving permeable surfaces, and, in some places, having implemented spaces with vegetation and trees (Paris 2023). These kinds of interventions act not only at a health and safety level for the pedestrian but also represent solutions for phenomena such as the urban heat island (Žuvela-Aloise et al. 2016).

Working with Stable Diffusion to Envision a Greener City

The use of AI as a tool, not as a designer. Given the errors we identified during the colour segmentation process, we concluded that, at the present moment, designers cannot rely on a tool to understand what it takes to create walkable and healthy cities. Although AI can be useful in analysing data and providing insights, it is evident that human intuition and creativity remain essential in the urban planning process. Designers must possess a profound understanding of the complexities of city planning in order to successfully create spaces that are both functional and sustainable. By combining the potential of technology with human expertise, we can work towards creating cities that prioritise the well-being and safety of their residents. Considering the present problem of biases in several fields, including urban planning, it is clear that AI should be used as a tool rather than a designer. Concerns raised by Cugurullo address the possibility that AI systems trained on data from metropolitan areas could mirror some prejudices. The use of biased data may lead to discriminatory results, strengthening stereotypes and biases in decision-making procedures (Cugurullo et al. 2023).

Ethical and reliable source of the data. While the use of diffusion models can present such potential to the architectural and urban design processes, we have to take into account the legal and ethical risks that can come from the datasets that these models use, and that are too large to be human curated. Somepalli et al. have shown that Stable Diffusion can generate replicated images with content and style copying, raising the question of originality and copyright protection from the original authors of the source data (Somepalli et al. 2022). Future research directions in the development of a generative tool for urban design should take into account training the model with ethical and reliable data. This will help prevent legal issues that may result from utilising databases

containing copyrighted information without authorisation. Training the generative tool with ethical data is essential to preserving the integrity of the design process and preventing biases or unethical practices.

The ethics of green city renderings. Furthermore, manipulation of public opinion may be a challenge with our proposal. In architectural and urban design practice, the problem of over-green renderings is well known. This form of digitally adding vegetation, which is often not physically possible in reality, is a form of greenwashing that can be used to manipulate public opinion regarding certain projects (Wang 2021; Kohlstedt 2016). This can lead citizens into believing a project is more eco-friendly than it actually is. We consider that architects have a moral obligation in proposing projects and achieving views as close as possible to the truth of an implemented project.

Imagining digital possibilities of a green city. The images created should be treated as visions of a possible future and not the final result. We know from our architectural practice that people tend to view rendered images as the finished state of a project. However, we should not overlook the importance of such images of possible working objects for the future results of a project. Rose considers these digital visualisations of urban spaces as 'lively socio-technical objects embedded in socio-technical networks' having an impact on the actual city space (Rose 2022).

Conclusions and Future Possibilities

The development of urban green infrastructure has been identified as a crucial step towards enhancing the quality of urban life in Romanian cities (Petrișor, Mierzejewska and Mitrea 2022; Popa 2022). However, successful implementation requires improved communication and collaboration among citizens, public authorities, the scientific community, and urban practitioners (Gavrilidis et al. 2020). Our research represents a first step as an exploration of the capacity of AI to work as a tool for urban planners and designers to raise awareness of the need for change in growing the urban green infrastructure of Bucharest. The representation and visualisation of urban settings plays an important role in many ways that influence city planning and development, including the dissemination of design ideas and the participation of stakeholders in decision-making.

These illustrations serve as a visual representation of the benefits of incorporating green infrastructure in urban planning, highlighting the positive impact on both the environment and community well-being. By prioritising green spaces, cities like Bucharest can create more sustainable and liveable environments for their residents. While AI tools may aid in visualising potential interventions, it is important to consider the limitations and biases

of these technologies in accurately representing the complexities of urban spaces.

Future directions of research and action include working with community input and engagement in order to consider the community's role in the decision-making process. This involvement will ensure that interventions are truly beneficial and sustainable for all stakeholders involved. Thus, the next step in our research will involve working with civic groups or communities on specific projects. And to promote the images online. We strongly believe in the need to involve the local community in the placemaking process. We hope that a strategy like this will help to start real change initiatives. This could lead to the development of a replicable and ethical method for employing green visualisation AI tools for citizen participation in shaping our places and cities.

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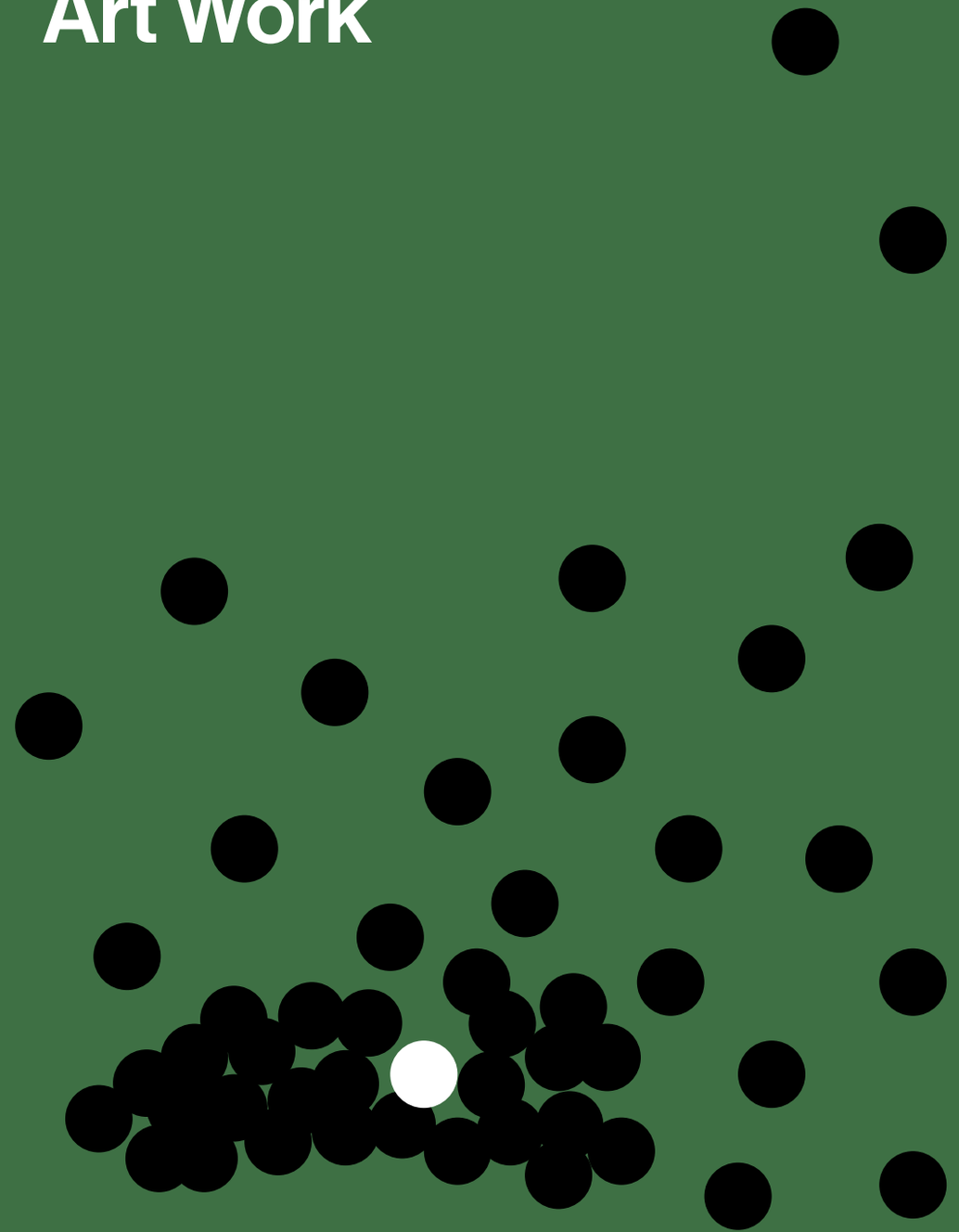
Part 3
Art Work



Chapter 12

Shaping Narratives of the Crisis at the Intersection of Art, Technology and Speculative Artifacts

Indiara Di Benedetto

Multimedia artist, videographer, photographer
indibe94@gmail.com

Is it possible to create narratives about social and environmental crises by developing speculative artifacts at the intersection between art and technology?

The creation of speculative artifacts recalls the characteristics of objects to evoke stories and memories of a specific time and context. In this scenario, the art domain is the intersecting field to research objects – mediated by technology – as strong carriers of new stories, memories, and imaginaries.

Through the recent projects developed – with a main focus on the artwork 'Future Memories of Deep Water' – the presentation investigates how speculative artifacts can address current issues affecting the human and non-human spheres. An emphasis is placed on imagining future archaeological artifacts, both as a way to create discussion about aspects of crisis determined by the human activity within the entanglements between objects and ecosystem, and to question what our archaeological heritage might look like in the future.

The artist talk proposes a dialogue about current problems affecting our times, exploring the possibilities to envision imaginaries of the future through tangible objects. The audience is encouraged to rethink their relationships with the objects and the ecosystem, and to imagine the traces of the present as the archaeology of the future.

The main projects introduced during the presentation are "Portrait of a Generative Memory" and "Future Memories of Deep Water".

Portrait of a Generative Memory
Indiara Di Benedetto Interactive Installation, 2020

How does a person interpret and remember a human face? How can these memories and related emotions be communicated?

As an attempt to remember individual faces while dealing with large amounts of pictures, 'Portrait of a Generative Memory' focuses on the subjective interpretation of personal memories by collecting information about the elements that people are able to memorize about a human face.

The elements of the human face that a person can remember are combined and interpreted to generate a new series of abstract and unrepeatable portraits.

Figure 12.1: Indiara Di Benedettto, 'Portrait of a Generative Memory', 2020

Future Memories of Deep Water
Indiara Di Benedetto
Research & Installation, 2021–2022

What are the changing conditions for Archaeology in underwater ecosystems? Can challenges be predicted and solutions imagined using Machine Learning?

With the passage of time, underwater artifacts are encrusted with coral, algae or other marine organisms. How do human activities and pollutions undermine these natural environments? What will our underwater heritage be like in the future?

The project: 'Future Memories of Deep Water' explores how algorithms can be used for predicting new entanglements between underwater artifacts and the changing environment where they are discovered. We reflect on current problems and dangers for marine environments, such as plastic pollution.

Built upon experimental speculation, 'Future Memories of Deep Water' calls for the protection of threatened marine ecosystems and aims to create awareness and encourage preservation of cultural heritage.

Figure 12.2: Indiara Di Benedettto, 'Future Memories of Deep Water' – Generated Images, 2021

Figure 12.3: Indiara Di Benedettto, 'Future Memories Of Deep Water' – Installation View at CYENS Centre of Excellence, Nicosia (CY), 2021

Chapter 13

Speculations on/with Light-Sensitive Matter

Marinos Koutsomichalis

Cyprus University of Technology, ECT Lab+ ERI of EUt+
m.koutsomichalis@cut.ac.cy

This short essay discusses the Mörk Materia project that has been presented in a hybrid format combining elements of audiovisual performance, talk, and artefact exposition. The project pivots on cameraless photography and the creative utilisation of the darkroom as a creative laboratory to produce 'stuff' all by itself. Employing a variety of techniques, photo and non-photo chemistry, silver-gelatin film, photo-sensitive paper, and slapdash materials, all kinds of abstract imagery is created entirely from scratch. On this continuum, Mörk Materia celebrates unconditional exploration of the literal/material foundation of photography and suggests itself as a hands-on means of speculation and ontological enquiry.

Poetics

With respect to production, *Mörk Materia* employs a wide array of methods and suggests that the darkroom becomes a laboratory for creative – and playful – experimentation at the intersection of science, art, techno-material know-how, and a certain kind of non-linguistic arts-led philosophical enquiry. To this end the ways silver-based photo-reactive materials (8/16/35mm BW film, 4x5 BW film, BW fibre-based and resin-coated papers) react to light, chemistry, temperature, humidity, and time, as well as the ways in which the resulting artefacts and the resulting imagery manifest phenomenologically are all put under scrutiny. There is some literature covering experimental and darkroom-oriented photography in the darkroom (Anderson 2022; Enfield 2013). Yet, the method pursued here is rather hybrid and bespoke. Adhocracy is paramount here, both as a choice and resulting from the very nature of the materials at play (film, paper, and chemicals that age and that react in very different ways to environmental invariances). Then, the production sections are largely improvised, often haphazard, and surfacing an ongoing give-and-take between

materials, environmental invariances, and playful experimentation. To give an example of such a session: the author places pieces of photo-sensitive paper together with different kinds of film, ordinary paper towels, screws and other pieces of metal, and some non-soluble liquid. This assemblage is then sprayed with some developing or fixing agent and exposed in light a few times for just a few moments and after scrambling the various integrals. Further development and fixing processes follow.

The standard stages and techniques (e.g., exposure, development, fixing, photograming, Sabbatier, solarisation, toning, bleaching, etc.) are still encountered in *Mörk Materia*; yet not necessarily in the 'correct' or in some 'linear' order, not necessarily in the entire surface of some photo-sensitive substrate, and almost always combined to one another. So that, for example, films could be partially fixed before development; point-like light sources could be used to immediately draw on some substrate; exposure could as well take place after partial development or fixing, etc. On this continuum, the resulting material artefacts become records of their own makings in a fashion very much akin to Stucturalist/Materialist cinema (Gaal-Holmes 2015) or early Russian/Soviet Constructivism (Lodder 1983). That is to say, that each piece of paper or film is a unique and unambiguous material evidence of the process that has generated and bears its marks in a very straightforward fashion. Consider,for example, splashes of chemicals, film or object outlines, and others as shown in the images herein.

The resulting artefacts concern film negatives that can be subsequently digitally scanned and/or printed in the darkroom; unique silver gelatin prints that are created directly on photo paper; and on a few occasions 16mm or 8mm motion films to be projected. Concerning the latter, the author has tinkered with an 8mm projection machine, installing microphones and induction coils inside it and so as to facilitate an audiovisual performance. The author projects the reel that results in all sorts of abstract shapes and shades of light/darkness while also modulating various projection parameters (speed, still frames, forward/backward movement, focus plane, etc.); at the very same time he employs a mixer to zero in on the sounds of the various different mechanical parts of the projection machine. That is to say, that he 'probes' the specifics of both the literal material (film) and the means to reproduce/present it (the projection machine), foregrounding details and branding an audience phenomenological access to qualities that are otherwise inaccessible to direct experience.

Discussion

Mörk Materia (Swedish for 'dark matter') is a direct reference to the homonymous poetry book by Aase Berg. At a very superficial level, this project is also concerned with 'dark

matter' (the silver-based photo-reactive matter that turns darker with respect to light exposure). Yet, the reference to Berg's work is more than just a poetic one. Berg's poetry is generally known for its intrinsic 'resistance to ontological stability', its 'grotesque representations of the body' and its 'blurring of the line between human and nonhuman entities' (Cain 2021). In her *Mörk Materia*, non-human matter is dark, unruly, hybrid and in an ever state of becoming. It mingles with organic and inorganic substances as well as with conscious and non-conscious processes of thinking, unthinking, not-thinking, and even mechanical operation; so that while it sustains a nature/culture dichotomy it does so in fashion that suggests a rather complex relationship that continuously evolves bringing to the fore all sorts of mutually exclusive possibilities to be poetically explored (Attfors 2014).

This project, too, seeks to suggest a rather complex relationship between material substrates, environmental invariances, technique, *techne*, and technology, and to further fumble about thereof. It seeks to underpin processes of hybridisation, transfiguration, and mutation that are intrinsic to the materials involved and to expose techno-material experimentation as a method that is simultaneously poetic, haphazard, and speculative. That is, as some kind of probe that can be employed so as to ontologically inquire particular materials; yet, not in a vacuum but within contingent processes of becoming, evolvement and reciprocal reaction.

In simpler words, unconditional experimentation in the darkroom foregrounds the materials of photography (film, paper, chemistry) not as means to represent some extrinsic reality but as what they literally are: substances that contingently react to light, chemistry, time, and environmental invariances so that the stuff they are made of becomes progressively 'darker' with respect to the former. The result is nothing more and nothing less than material records of the very specific interactions and invariances at play: not representations nor connotations of them, but them themselves – as ontologically unique manifestations of the photo-chemical conditions that afford them.

Future Work

The resulting artefacts are often sensitive and prone to aging, so that the chemical process of transfiguration with respect to light, temperature, humidity, and other invariances keeps on, albeit on a much slower pace. Accordingly, they are by nature a work in progress; documenting the ways in which they change over time and reflecting upon it is something the author shall return to in the future. On a different note, the author keeps experimenting with darkroom techniques so as to produce even more material of the sort and so as to eventually exhibit and publish what results.

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Chapter 14

A Matter of Care

Jye O'Sullivan

National College of Art and Design, Dublin, Ireland, ECT Lab+ ERI of EUt+
osullivanjb@staff.ncad.ie

Despite large shifts towards post humanist scholarship in the humanities and the arts, dominant discourses often remain both anthropocentric and logocentric. *A Matter of Care*, brings together analogue and digital materials with recorded interviews on the theme of care and generative sound synthesis to reflect on the materiality of sound and thought. Understanding care as both an empathetic form of what Paul Ricœur terms "little ethics", and as a patriarchally gendered labour (de la Bellacasa 2017), this sound installation began by conducting a series of interviews on the theme of care, especially with queer and non-binary people.

Figure 14.1: A Matter of Care, 2023.

Participants were asked to perform a task of "care giving", defined by themselves, whilst responding to questions that tied together care, queerness, multispecies communication, and speculation. The interviews drew on decolonial methodologies from contributory research (Thambinathan and Kinsella 2021) and emphasised the need to establish a safe space, guided by the needs of the participant. Activities ranging from tarot-reading to walking were engaged with by both the interviewer and interviewee in an open ended manner.

One minute sections of these interviews were loaded onto different clips in Ableton and could be selected by visitors to the exhibition through the use of the yellow buttons on the Novation Launch Pad (see Fig. 14.1). The audio of these clips also formed the triggers for a generative, ambient sound scape, made through VCV Rack. In addition to this, the interviews were recorded onto tape which could be interacted with and recorded over by visitors through a Phillips cassette player, which would also trigger generative stems in VCV Rack.

Using these audio techniques, *A Matter of Care* invited visitors to explore the materiality of care. The tape, like the body, becomes a palimpsest through an endless process of recording over and over onto the same material. In turn, each of these new material-sonic additions are made tangible to the next participants through the different generative process they produce through the VCV's generative sounds. The work speculates on the ways that metabiotic relations undergo constant material transformation that constitutes the co-becoming of multispecies and abiotic actors in ecologies. The shifting materiality of our techne mediate our relations.

Visitors were encouraged to enter the space, interact with the work and share narratives on the theme of care, whilst recognising the material encoding of these narratives in a fluid array of mediums, from analogue tape and digital WAV files, to their own bodies. Expanding Marshall McLuhan's maxim "the medium is the message", *A Matter of Care* demonstrates, far from being an immaterial virtue, care is always an embodied, matter exchange.

Figure 14.2: O'Sullivan, J. A Matter of Care. Installation View, 2023

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Chapter 15

TRILOBITE! A Thought Experiment with Bewildering Facts in the Spirit of Lewis Carroll

Ester Toribio-Roura

TU Dublin, ECT Lab+ ERI of EUt+
Ester.ToribioRoura@tudublin.ie

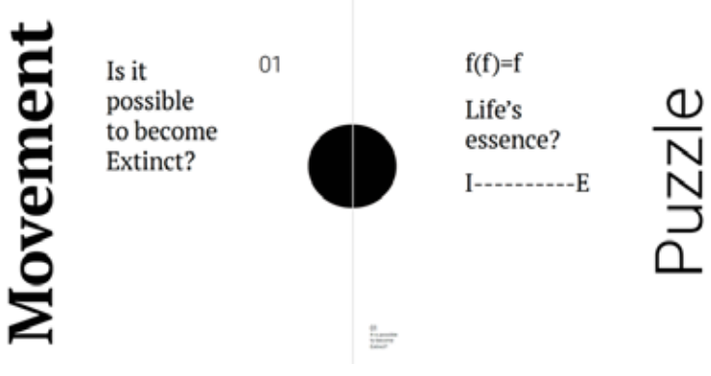
In recent times, many fields of the sciences and humanities have experienced a post-anthropocentric turn and explored Speculative Fabulation (SF) as a storytelling tool to devise alternative stories of the Anthropocene. SF allows for the emancipation from dominant techno-scientific and economic worldviews enabling the reconfiguration of anthropogenic activities

through the queering of knowledges into unfamiliar configurations.[1] SF carries us into spaces of speculation, where there is no habitable place for the mind of man.[2] While speculation can stay in a continuum within the binary state of fact to fiction, it can also make something become more porous and therefore less common, provoking bewilderment. In this state, the human mind begins to operate nonlogically. As the theory goes, only by stepping outside of logic, can we make the leap into deep insight.[3]

This performance pays attention to this aspect of speculation and proposes a thought experiment in the spirit of Lewis Carroll in which a scientist is confronted with the weakness of some of science's truths when seen through the lens of an intemporal creature: the Trilobite.[4]

Posed as an unfinished tryptic with a prologue and an epilogue, halfway between immersive storytelling and multimedia performance, the piece deploys three specular micro-narratives or movements[5] in which the academic discourse is continuously de-composed and re-composed into unfamiliar arrangements. In the action, scientific truths are rendered porous, perforated by both akin and alien elements: the rawness of a 'thinking' body, deep dialogues with the appearance of absurdity and the other way round, fractal musical scores, mathematical formulas and Fluxus questionnaires.

Prologue



1 Truman, S.E. (2019) SF! Haraway situated feminisms and speculative fabulations in English class. *Studies in Philosophy and Education* 38(1): 31–42.

2 Paraphrasing Robert Louis Stevenson in *Pulvis et Umbra* (1929), Minneapolis.

3 Hofstadter, p. 251.

4 The 'Trilobite!' with the exclamation is a tribute to Richard Fortey's book. The 'spirit of Lewis Carrol' in the title is a reference and tribute to Douglas R. Hofstadter's, in my opinion, exceptional book.

5 The screen and the character of the Trilobite act as the specular image of the scientist.

Let us imagine for a moment that all that is named by the Anthropocene had not occurred. This thought experiment of a world in which there-is-not-such-a-thing as an Anthropocene is a means of engaging with some of the Anthropocene's core elements__ yet turning them completely upside down. In this exercise of speculation, these core elements are explored through storytelling since stories have the capacity to return us to our condition of nomads. That is: multiple, fluid, embodied, entangled, pre-human, post-human or simply us. During the experiment some questions were asked: Is it possible to become extinct? Does everything have to be so complicated? Are we asking the right questions?[6]

Each question is investigated through 'movement' in both acceptations of motion and as a distinct part of a larger composition: movement of the body (action), movement through dialogue (inter-action), and recurrent scores (Leitmotivs) followed by a 'thoughtful' questionnaire to the audience: *Please Answer this question carefully: YES, NO*. A booklet distributed to the audience features a puzzle for each question investigated that participants are invited to decipher.

Once upon a time...

Scientists researching oceanic trenches in the South Pacific *discovered an ancient dimensional portal located in a cosmic rope. These ropes are hypothetical remnants of the early evolution of the universe, and they have a very high density, so much so that everything is contained in them. Theoretically, these portals would allow the transfer of living matter (carbon, silicon, and otherwise), over vast distances and periods of time, although this had never been demonstrated before. During the investigation, the scientists accidentally bring back from the distant past a living trilobite capable of speaking, but in a language that the scientists do not understand. This discovery raises*

6 Blue text in italics are excerpts from the performance.

philosophical and ethical questions about extinction, evolution, the nature of scientific knowledge, and the human presence on the Planet.

The Questions

1st Movement: Is it possible to become extinct?

TRILOBITE: In a cosmic wink, you label me a fossil, primitive and unsuccessful, yet here you stand, Johnny-comes-latelies, fleeting as a summer's breeze. Marvel at your speckle of existence, proclaiming a mere 3% of mathematical certainty in a 97% universe of unknowns. Call it dark matter. Climate change? Mankind's orchestration? A lively dance. Your so-called Anthropocene? A masquerade. You attempt stability amidst chaos, devouring the very world you seek to protect. Ignorance is ignorance is ignorance echoing in your effort. Sustainability on Sundays, violence veiled as progress. Life's essence? In-difference. Your grand plans? It strikes my kind how all your misdeeds come down to failures of either compassion or epistemology.

The trilobite recounts his encounter with the scientists. He notes that scientists refer to the sixth extinction as if it were something extraordinary bound to happen in the future. For the trilobite, extinction is an intrinsic part of the course of life. In other words, extinction is an ordinary event. Challenging some of the concepts implicit in the Anthropocene, such as that climate change is caused by anthropogenic action, the trilobite, like Claire Colebrook's Anthropocene counterfactuals (2014), contends that the cause of climate collapse[7] can be found instead in the attempts of the Anthropos to stabilize the climate. Delving into the theory of the eternal return, that might be expressed mathematically as f(f)=f, the trilobite confronts the scientist: *What is life such that it can generate a species capable of destroying all life? Now, listen to me: To live is to be in-different.* The trilobite's statement implies that life, when viewed through a certain perspective, operates on scales and in ways that are profoundly indifferent to human concerns.

2nd Movement: Does everything have to be so complicated?

Blab bla blab bla bla blabla blab bla bla blabla bla bla bla blabla bla bla bla blabla bla bla bla blabla mass production bla bla bla blab bla bla blabla blab bla bla blabla bla bla bla blabla bla bla bla blabla bla bla bla quantum mechanics blabla bla bla bla blab bla bla blabla blab cannibal metaphysics bla bla blabla bla bla bla blabla bla bla Feminism bla bla blabla bla bla bla blab bla bla blabla blab bla bla

7 'Collapse' instead of 'change' because change is inherent to the climate.

blabla bla bla bla blabla bla bla bla blabla bla bla bla blabla bla queer bla bla bla blab bla bla blabla situated knowledges bla bla bla blabla bla bla bla blabla bla bla bla blabla bla bla bla blabla bla blbla blab bla bla blabla blab bla bla blabla ethics bla blabla bla bla bla blabla composting-with-care bla bla bla blabla bla bla blabla bla bla more-than-human bla blabla bla bla bla bla blabla bla bla bla bla blabl bla bla

In this movement the trilobite adopts the role of a rogue scientist ironizing about the overengineering of life through technological 'progress.' The trilobite sees certain kinds of technological progress as a Rube Goldberg machine (e.g. algorithmic overcomplication of simple tasks) and advocates for a low tech 'cosmotechnoethical'[8] progress. In the action, this is translated into the trilobite dropping certain 'indigestible' concepts in the midst of a logorrhoeic speech. The scientist at the other side of the speculum chokes every time she hears one of these terms. The vignette ends with the scientist vomiting a fossil trilobite, signifying the stagnation underlying technological progress misunderstood. This movement serves as introduction to the next by formulating the paradox of infinite regress challenging the supposed certitude of scientific knowledge: (A=> C) => {[A => (A => C)] =>C}

3rd Movement: Are we asking the right questions?

SCIENTIST: Welcome to the III ECT+Lab conference Trilobite... We are very intrigued about your presence and would like to know how come you have managed to survive until now being a... fossil?

TRILOBITE: Do you know how to subtract? How much is 1-1-1-1-1-1-1-1-1-1-1-1-1-1-1-1-1?

SC: Stop, stop, stop, I lost count! Anyway, we are here to know how come you have managed to survive until now being a fossil?

TRL: You don't know how to subtract. Na, na, na, na! All this brain power for nothing!

8 'Cosmotechnoethical' is formed by the combination of cosmotechnics as defined by Yuk Hui (2016) and ethics. Yuk Hui emphasises the interconnection between different technological traditions and their respective cosmologies, highlighting how diverse cultural and philosophical perspectives shape the development and understanding of technology. For the trilobite is crucial to add the ethical dimension to both epistemic diversity and technodiversity dimensions

SC: Please focus, these distinguished scientists are looking for answers and we don't have all day. Please Trilobite, tell us, how come you have managed to survive until today being a fossil?

TRL: Here, have a drink!

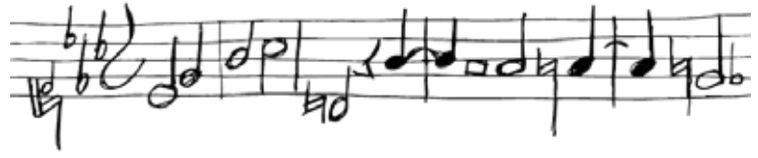
SC: A drink? But Trilobite, this is a biscuit!

The 3rd movement challenges traditional human-centric approaches to understanding the world. The apparently playful and absurd dialogue between the scientist (asking questions) and the trilobite (the object of scientific study) draws attention to a very serious realisation: our current understanding of the world might be built upon misunderstandings and incorrect measurements. The provocation is, instead of discarding what doesn't fit our methods of interrogation, to ask different, more insightful questions, bringing in different perspectives beyond the human to uncover richer, more nuanced understandings of the world. This approach encourages a shift away from viewing the other-than-human merely as objects of study or as entities whose value is determined by their utility to humans. Instead, the idea is promoting the recognition of others as subjects with their own perspectives, agencies and capacities to affect and be affected by their interactions with humans and the environment. Science through this lens would foster deeper empathy and ethical considerations for the 'matters of the world'. It challenges anthropocentrism and speciesism and advocates for a more reciprocal, non-hierarchical, relationship between scientists and their research interests.

The Characters

The performing dyad: the scientist and the trilobite can be compared to the clowning archetypes of *Whiteface* and *August*. While the scientist (Whiteface) evidences certain 'overgrooming' in her attitude and use of language, the trilobite (August) appears unrefined. They form a semiotic pair in which the signs that define one are mirrored (and therefore inverted) in the other. In traditional clowning Whiteface's role is authoritarian, always trying to master the rebel (at times victimised) August but in the end the latter manages to outwit the former thanks to his candour (Bouissac 2015).

The Leitmotivs



The two leitmotivs, like the scientist and the trilobite, can also function conceptually as a semiotic couple conveying specific meanings or emotions to the audience. Both motives, Bach's fractal score or crab[9] canon (1747), and Kokyuu's ominous whispers by Yas-Kaz (1987) are related in the performance but have opposite or complementary meanings. Bach's canon stands for life's ongoingness, representing its perpetual, albeit fractal, order. Kokyuu is the phonic rendition of the (also recurrent) chaos within life's order. Bach's leitmotiv introduces the vignettes and the questions, while Kokyuu is played when the scientist is drawn into the unknown (*terra incognita*).

9 The enigmatic 'Crab' Canon 1 à 2 from J. S. Bachs Musical Offering (1747) is a musical arrangement of two complementary lines, one being backward, or in other words a reflexion of the first, topologically forming a Möbious string.

Epilogue

In the epilogue, the scientist and the trilobite perform a loose version of the traditional clowning act of the broken mirror. In the original act, August breaks Whiteface's vanity mirror and decides to pose as his specular image although somehow off. In this performance the original timeline is inverted (the mirror breaks at the end) thus ending the duality between the scientist (Whiteface) and the trilobite (August). They are kin. G= ∞

Nothing is external to us because everything is contained in us, and we are contained in everything. There is not inside or outside, nor up or down, there are no dimensions. Science and technology have helped us progress, to live better, but also to make life impossible for others. What is progress? [...] *Progress is caring.* [...] *Why are we here? Neither science nor technology, neither philosophy nor religion have revealed the mystery of life. Like death, life remains a mystery for the living* [...] *Our origin stories and recycled narratives are purely specular reflections. We can never see our own face.* [...] *We dream of a big breakthrough that helps us understand the entire universe. We think big when the universe fits in a reed. We're all stuck in a loop. The entire universe is a perpetuus molto vivace. Do I really exist isn't a question that the missing peoples and the more-than-human really ask. They know they exist, and that their body is real because it hurts* [...]. *It takes a certain privileged position to doubt your corporeal reality. Do you want answers?*

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Chapter 16

The Eternal Labyrinth An Artistic Interpretation of "The Garden of Forking Paths"Koutsomichalis

Thanos Vozikis

Artist/Researcher, Media Arts and Design Research Lab, Cyprus University of Technology, Cyprus
acvozikis@gmail.com

The Eternal Labyrinth stands as an artistic exploration that reimagines the conventional literary narrative structures through a physical installation, inspired by Jorge Luis Borges' "The Garden of Forking Paths". The artwork examines Borges' exploration of infinite possibilities and time's nonlinearity while also delving deeper into the chaotic structure underlying our perception of reality. Inspired by the complex interplay of chaos theory – as outlined by Gemma Curto, this artwork seeks to materialize the abstract notions of infinite bifurcations and the sensitive dependence on initial conditions into a tangible, immersive experience. Borges' narrative strategies, blending mathematical aesthetics with literary creation, provide a rich mise-en-scène in which *The Eternal Labyrinth* unfolds, embracing the unpredictable yet deterministic nature of chaos to craft a space where every choice and path leads to a myriad of unforeseen destinations.

Aligning with Borges' intellectual framework and amplifying the critical issues he raises, *The Eternal Labyrinth* aims to forge an allegory that extends beyond the text, engaging both literally and metaphorically, thus fostering discussions on modal logic and the exploration of conceivable worlds. Consequently, a new labyrinth is conceived, one that moves away from the conventional characteristics of a labyrinth – a unicursal path with a single entrance and exit – introducing instead a vast array of entry and exit points, replacing the traditional unicursality with a multiplicity of possible routes, and transforming the once static architecture into a dynamic, perpetually changing form.

The fabrication process, marked by experimentation with digital fabrication technologies like 3D printing and laser cutting, led up in the selection of transparent acrylic and laser engraving to achieve the desired optical illusions and interactive qualities. By converting Borges' text into binary data and applying the Marching Squares algorithm (Lorensen and Cline 1987), a dynamic labyrinth is generated that creates conditions of inescapability on the micro-scale, but also evolves just like an organism on the macro-scale. This dynamic nature of the labyrinth not only reflects the chaos and identity crises within the novel but also resonates with the viewer's own reflections, as they see their image merge and fade into the evolving artwork. This approach aligns with the narrative's theme of endless divergence while also capturing the chaotic underpinnings of the story, where minor variations in the narrative's starting point lead to significantly different experiential outcomes. *The Eternal Labyrinth* invites viewers to immerse themselves in Borges' fictional realms, now realized in a space that oscillates between order and chaos, echoing the unpredictability of life itself.

By weaving together the threads of literary work, mathematical concepts, and computational techniques, *The Eternal Labyrinth* offers a unique exploration into the depths of human perception, choice, existentialism, and the infinite paths that lie before us. As participants journey through the labyrinth, they engage in a profound dialogue with Borges' vision, now reframed within a physical installation that prompts reflection on time, reality, and the cosmos.

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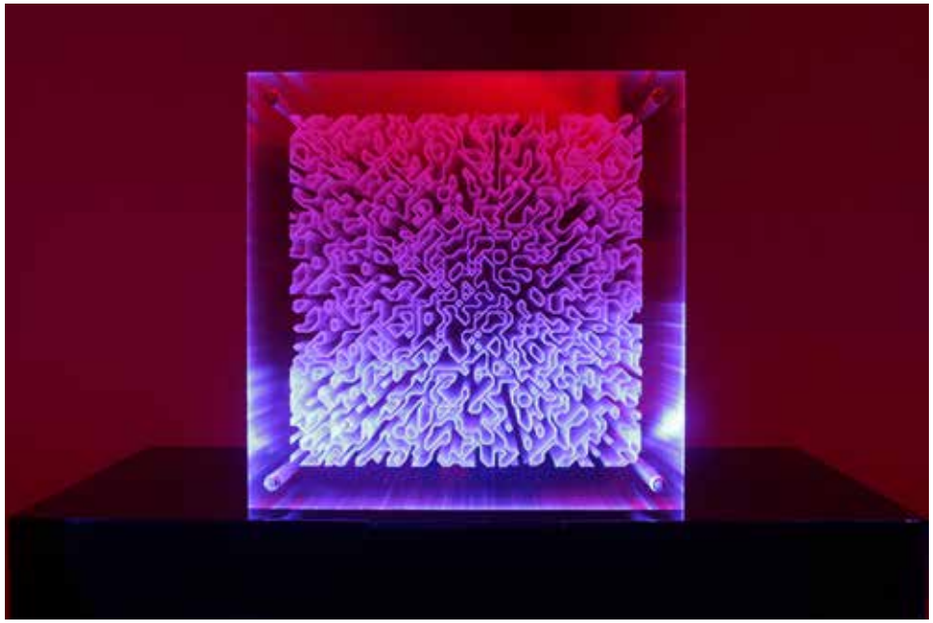

Figure 16.1: Thanos Vozikis, *The Eternal Labyrinth*, 2023

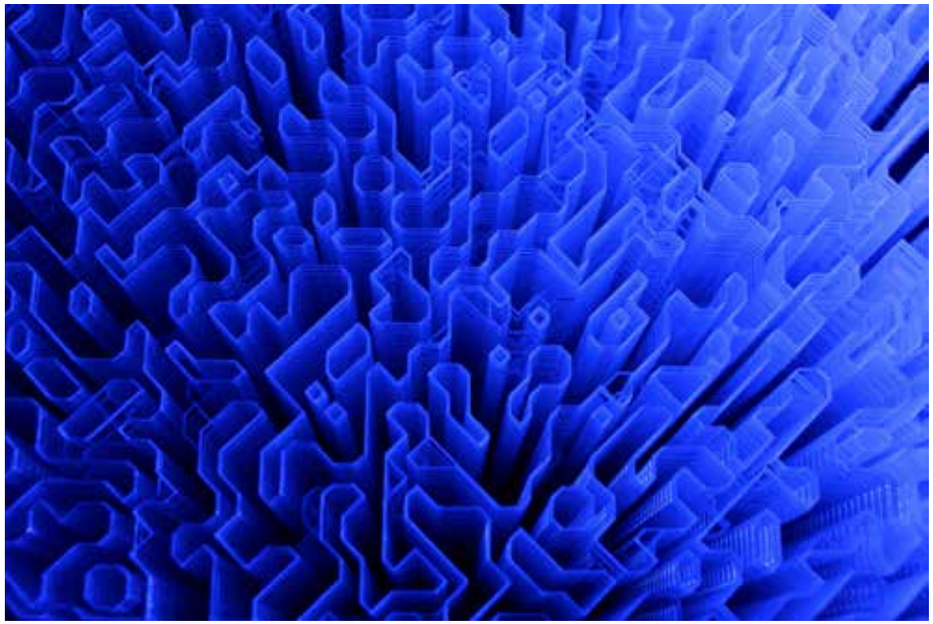

Figure 16.2: Thanos Vozikis, *The Eternal Labyrinth*, 2023

The ECT Lab+ brings together researchers who are interested in the impacts of technology on society, these impacts can be both positive and negative; this we can term a pharmacology. Following on from the recent material turn in philosophy of technology, the ECT Lab+ conceives of technology as part and parcel of the process and practices of becoming human in the world. Hence the title of the ECT Lab+ reflects the positioning of technology within a culture, acknowledging that technology is not built in a vacuum but in and for society. The second aspect of the cultural environment of technology stems from the philosophical positioning of technics, technē and technology within their cultural locality or milieu.

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